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P.V. 179 402909 Sup. Ct.

Vol. I

TRANSCRIPT OF RECORD

INDEX

Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

SIX COMPANIES OF CALIFORNIA, HARTFORD ACCIDENT AND INDEMNITY COMPANY, ET AL., PETITIONERS,

vs.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR CERTIORARI FILED JULY 22, 1940.

CERTIORARI GRANTED OCTOBER 14, 1940.

No. 9113

United States

Circuit Court of Appeals

For the Ninth Circuit.

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

Transcript of Record

In Eight Volumes

VOLUME I

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Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

PARKER PRINTING COMPANY, 543 SANSOME STREET, SAN FRANCISCO

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Vol. II

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Pages 1 to 468

Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

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Attorneys for Appellee Joint Highway District No. 13.

In the United States District Court of the Northern District of California, Southern Division

No. 20101R—Law

SIX COMPANIES OF CALIFORNIA, a corporation,

Plaintiff,

vs.

JOINT HIGHWAY DISTRICT NO. 13, OF THE STATE OF CALIFORNIA, a public corporation,

Defendant.

COMPLAINT FOR MONEY

Now comes the plaintiff above named and for cause of action against the above named defendant alleges as follows, to-wit:

I

That plaintiff, Six Companies of California, was at all the dates and times herein mentioned, and still is, a corporation duly incorporated, organized and doing business as such corporation under and by virtue of the authority of the laws of the state of Nevada, and is, and at all the times herein mentioned has been, a citizen of the State of Nevada;

II

That defendant, Joint Highway District, No. 13, of the [1*] State of California, is now, and at all

*Page numbering appearing at the foot of page of original certified Transcript of Record.

the dates and times herein mentioned has been, a public corporation, duly incorporated, organized and existing under and by virtue of the authority of the laws of the State of California, and is now, and at all the dates and times herein mentioned has been, a citizen of the State of California;

III

That this proceeding is one of a civil nature and the parties were at all the dates and times herein mentioned, and still are, citizens of different states;

That the sum involved herein, exclusive of costs and interest, is in excess of $3,000.00, being the sum of $3,259,695.04;

IV

That the grounds upon which the jurisdiction of this Court depends are as follows:

(a) The existence of diversity of citizenship between the parties plaintiff and defendant as above set forth; and that said suit is of a civil nature between citizens of different states;

(b) The amount in controversy exceeds, exclusive of interest and costs, the sum of $3,000.00

V

That within two years last past, said defendant became indebted to this plaintiff in the sum of $5,280,742.15 for work done, labor performed and materials furnished by said plaintiff to said defendant, at the special instance and request of said defendant;

That no part of said sum has been paid except the sum of $2,021,047.11, and that there is now due, owing and unpaid from defendant to plaintiff on account of said work done, labor performed and materials furnished, the further sum of [2] $3,259,-695.04, and interest thereon.

Wherefore, plaintiff prays judgment against said defendant.

For a further, separate and second cause of action against said defendant, plaintiff complains and alleges:

I

Plaintiff hereby repeats and adopts each and all of the allegations hereinbefore set forth in Paragraphs I, II, III and IV of the first cause of action herein set forth, and hereby makes each and all of said allegations a part of this its second cause of action as fully as though each and all of said allegations were herein specifically repeated.

II

That within two years last past, said defendant became indebted to this plaintiff for work done, and labor performed and materials furnished by said plaintiff to said defendant of the reasonable value of $5,280,742.15, and that said sum was and is the reasonable value of said work done, labor performed and materials furnished;

That no part of said sum has been paid except the sum of $2,021,047.11, and that there is now due, owing and unpaid from defendant to plaintiff on

account of said work done, labor performed and materials furnished, the further sum of $3,259,-695. 04, and interest thereon.

Wherefore, plaintiff prays judgment against said defendant for the sum of $3,259,695.04, together with interest thereon at the rate of seven per cent. (7%) per annum from the time the respective portions thereof became due and payable, for its costs of suit incurred herein and for such other and different relief as to the Court may seem meet and proper in [3] the premises.

THELEN & MARRIN
By PAUL S. MARRIN
DE LANCEY C. SMITH
J. PAUL ST. SURE
EUGENE E. TREFETHEN
Attorneys for Plaintiff

State of California,
County of Alameda—ss.

Henry J. Kaiser, being first duly sworn, deposes and says: that he is an officer, to-wit: the President of Six Companies of California, a corporation, plaintiff herein, and that he makes this affidavit for and on behalf of said corporation; that he has read the foregoing complaint and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated on information or belief, and that as to those matters that he believes it to be true.

HENRY J. KAISER

Subscribed and sworn to before me this 30th day of June 1936.

[Seal] PAUL E. ROGERS

Notary Public in and for the county of Alameda, state of California.

[Endorsed]: Filed Jul. 1, 1936. [4]

In the United States District Court of the Northern District of California, Southern Division.

No. 20101 R

SIX COMPANIES OF CALIFORNIA, a corporation,

Plaintiff & Cross-Defendant,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Defendant & Cross-Complainant,

and

HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SUR-

ETY COMPANY OF NEW YORK, a corporation, FIREMAN'S FUND INDEMNITY COMPANY, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, PACIFIC INDEMNITY COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Cross-Defendants.

ANSWER AND CROSS-COMPLAINT OF DEFENDANT AND CROSS-COMPLAINANT JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA. [5]

Defendant, Joint Highway District No. 13 of the State of California, a public corporation, for answer to the complaint of plaintiff on file herein, and to the first count or cause of action thereof, admits, avers, denies and alleges as follows:

I

Admits the allegations of paragraphs I, II, III and IV of the said first count or cause of action.

II

Denies that within two years last past or at any time or at all said defendant became indebted to plaintiff in the sum of $5,280,742.15 or in any other sum whatever for work done or labor performed or materials furnished or for any other matter or thing whatever done or performed or furnished by said plaintiff to the defendant at the special instance or request of said defendant or otherwise or at all.

Denies that no part of the said sum has been paid except the sum of $2,021,047.11, and in this connection said defendant expressly alleges that it has paid said plaintiff any and all sums that were or are owing or due from plaintiff to defendant, and denies there is now due or owing or unpaid from defendant to plaintiff on account of any work done or labor performed or materials furnished, or otherwise or at all, the further sum of $3,259,695.04 or interest thereon, or any sum at all in any amount whatever.

And as a Second, Separate and Further Defense to said first count said defendant alleges:

I

Alleges that on the 4th day of June, 1934, a contract in writing was duly and regularly entered into

between [6] defendant and plaintiff wherein and whereby plaintiff as contractor agreed with defendant that the said plaintiff, pursuant to the terms of said contract and for and on behalf of defendant, would construct, erect, and complete a certain project of said Joint Highway District No. 13 of the State of California, defendant herein, which project included a highway, highway tunnel and approaches with appurtenant structures, including ventilation buildings, ventilation equipment and accessories, and the construction of highway approaches with pavement, drainage structures, curbs, gutters and sidewalks where required, construction of grade separation structures, viaducts, retaining walls and incidental structures, and connections with existing streets, all as described in said contract between the said parties, which project is located within the boundaries of said defendant District and partly within the City of Oakland, County of Alameda, State of California, and partly within the County of Contra Costa, State of California, all in accordance with the final surveys, plans, specifications and detailed drawings therefor theretofore adopted by the Board of Directors of said Joint Highway District No. 13, said defendant, and which contract, plans and specifications at all times herein mentioned have been on file in the offive of said defendant District, and to which reference is hereby expressly made.

II

Upon the letting of said contract plaintiff did commence the construction of the said project and did continue with the said work, receiving each month from defendant the monthly progress payments provided for in said contract for work done during the preceding month, which payments so made by defendant to plaintiff and accepted and retained by plaintiff up to the 13th day of June, 1936, amount to $2,021,047.11. [7]

III

On the 13th day of June, 1936, and after plaintiff had been so engaged on said work for approximately a period of two years plaintiff quit and abandoned said work and refused to proceed further with the performance of said contract, and did deliver to defendant a notice of abandonment and attempted rescission in the words and figures as follows:

"June 13, 1936

Joint Highway District No. 13
Of The State of California,
1448 Webster Street,
Oakland, California.

Gentlemen:

You are hereby notified that the undersigned, Six Companies of California, has elected to and does hereby terminate and rescind the contract dated June 4, 1934, between the undersigned

and your District for the construction, erection and completion of the project of said Joint Highway District No. 13 of the State of California, which includes a highway, highway tunnels, and approaches with the appurtenant structures located partly in the City of Oakland, County of Alameda, State of California, and partly in the County of Contra Costa, State of California, commonly known as the Broadway Tunnel Project.

Said rescission is made upon the following grounds and each and all of them:

First: Through your fault the consideration for our obligations under said contract has failed in part in that you have failed and refused to pay us the amount estimated by you to be due us under the monthly estimate for work done during the month of May, 1936. Said failure consists in the deduction by you from the amount estimated by you to be due us for such work of the sum of $3,500 for claimed damages for failure to complete the work under said contract, said deduction being computed at the rate of $500 per day for each day in May 1936 following May 24th, and to and including the 31st day of May, and including such a deduction for a legal holiday, May 30, and a non-working day, Sunday, May 31st. Said deduction was and is contrary to and in violation of the terms of the contract in that we were and are entitled as a matter of right and of law to an

extension of time thereunder for performance of same to a date after May 31, 1936; and was and is further in violation of the provisions of the said contract in that any damages for delay in completion of the contract can only be asserted or claimed against the contractor for working days after the contract date for completion. [8]

Second: That the consideration for said contract has failed in a material respect in that you have breached said contract by refusing to pay us the amount due us under your monthly estimate for work done during the month of May, 1936. Said failure consists in the deduction by you from the amount due us for such work of the sum of $3,500 for claimed damages for failure to complete the work under said contract within contract time, said deduction being computed at the rate of $500 per day for each day in May, 1936 following May 24th, and to and including the 31st day of May, and including such a deduction for a legal holiday, May 30th, and a non-working day, Sunday May 31st. Said deduction was and is contrary to and in violation of the terms of the contract in that we were and are entitled as a matter of right and of law to an extension of time thereunder for performance of same to a date after May 31, 1936; and was and is further in violation of the provisions of the said contract in that any damages for delay in completion of

the contract can only be asserted or claimed against the contractor for working days after the contract date for completion.

Third: That in failing to pay said sum mentioned in numbered paragraphs First and Second above and by your refusal to grant said extension of time you have breached said contract, and ground for rescission has arisen in our favor.

Fourth: That your failure and refusal to grant us the extensions of time to which we are entitled as a matter of right and of law for completion of said contract after May 24, 1936, although we have repeatedly requested the grant of such extensions is a breach of the contract.

Fifth: Because the ground encountered in the excavation for the tunnels provided for in the contract has been and is entirely and radically different from the character of ground represented to the contractor as that which would be encountered, and which was contemplated and predicted by the contract, geological report, specifications, plans and any and all other documents forming a portion or part thereof.

Sixth: For your failure and refusal to furnish points, lines and grades for us to work to and other engineering work in the construction of the tunnels as is required to be done or furnished by you by the terms and provisions

of the contract and specifications forming a part thereof.

Seventh: Because the work which is necessarily required to be done to construct the tunnels under the ground conditions actually encountered at their site is not provided for in the contract and was not contemplated by the parties at the time the contract was made.

Eighth: For any and all other grounds of rescission of said contract of June 4, 1934 which may have heretofore existed or which do now exist in favor of the undersigned.

We are returning herewith to you your check #1934 [9] dated June 10, 1936 in purported payment of the estimate for the work done by us during the month of May, 1936.

Very truly yours,
SIX COMPANIES OF CALIFORNIA
By HENRY J. KAISER,
President."

IV.

Upon the receipt of said notice of plaintiff, defendant notified plaintiff that it considered the action of plaintiff in refusing to perform said contract an abandonment thereof, and caused notice to be served upon plaintiff to resume work within three days after the receipt of said notice or the said defendant would construe the said acts of plaintiff as a final abandonment of said contract, which said notice and letter from defendant to plaintiff are in the words and figures as follows:

"June 16, 1936

Six Companies of California
1522 Latham Square Building
Oakland, California

Gentlemen:

Your letter of June 13, 1936 in which you notified this District of a purported termination and rescission of your contract with this District dated June 4, 1934, has been received and considered by the Board of Directors of the District, and this reply thereto is made at the direction of the Directors of the District.

You are hereby advised that Joint Highway District No. 13 of the State of California considers all of the grounds stated by you as a basis for your attempted rescission and termination of the contract are without basis in fact or law; that this District has fully paid all sums required to be paid, performed and done all things required to be performed and done by it under the said contract, and that you, as such contractor, have no valid grounds or reason whatsoever for your attempted rescission and termination of the contract.

You are advised that your cessation of work upon the project and your withdrawal of workmen from the construction of the project constitutes an abandonment by you of the work to be done under the contract that your said [10] acts which unnecessarily and unreasonably delay and continue to delay the work you con-

tracted to perform, and your attempted rescission and termination of the contract, and each and all of them, constitute wilful breaches of the contract by you.

You are further advised that unless you as said contractor resume work on the project and perform the same in accordance with all of the terms thereof within three (3) days of the date of your receipt of this letter, that this District will consider your acts and conduct as aforesaid a final abandonment of the contract and the work to be done thereunder, and the District will proceed to complete the same in accordance with the provisions of the contract, and that the District will hold you and your bondsmen liable for any and all costs thereof in excess of the contract price and any and all damages to this District by reason of your wilful abandonment of the work in violation of the terms of your contract with this District dated June 4, 1934.

Yours very truly,
JOINT HIGHWAY DISTRICT No. 13
OF THE STATE OF CALIFORNIA,
By L. V. EATON,
Assistant Secretary"

V.

Plaintiff on the 13th day of June, 1936, ceased all work under said contract and on said project and ever since said date has refused and still continues to refuse to proceed further therewith.

VI.

(1) At all times herein mentioned said contract between plaintiff and defendant provided that the work to be done under said contract by plaintiff for defendant should be completed within seven hundred and twenty calendar days from and after the execution of the contract and it was stated in said contract that time was of the essence of said agreement; the said period for completion expired on May 24th, 1936.

(2) It is provided in paragraph 3 of said contract that the whole of said work is to be done by plaintiff to the satisfaction and approval of defendant and in strict accordance [11] with the plans and specifications entered into between the parties.

(3) It is further provided in paragraph 4 of said agreement that the plaintiff is skilled in the trade or calling necessary to perform the work agreed to be done under the agreement and that the defendant not being skilled in such matters relied upon the skill of plaintiff to do and perform the work and labor necessary in the most skilful and durable manner. Plaintiff also in said contract guaranteed the said work.

(4) The specifications for said work are expressly made a part of said contract.

(5) Subdivision c of Section 2 of said specifications reads as follows:

> "Examination of Plans, Specifications and Site of Work.—The bidder is required to examine carefully the site of the work, the Pro-

posal Form, and plans, specifications and contract forms for the work contemplated. The submission of a Proposal shall be considered prima facie evidence that the bidder has made such an examination and is satisfied as to the conditions to be encountered, as to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of the specifications, plans and contract, or contracts."

(6) Subdivision d of Section 4 of the said specifications reads as follows:

"Damages for Delay.—The parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the contract or within such extensions of the contract time as may be allowed as herein provided, it is distinctly understood and agreed that the Contractor shall pay the District as agreed and liquidated damages and not as a penalty five hundred dollars ($500.00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work, said sum being specifically agreed upon as a measure of damage to the District by reason of delay in the completion of the work; it being expressly stipulated and agreed that it would be impracticable to estimate and ascertain the actual dam-

ages sustained by the District under such circumstances; and the Contractor agrees and consents that the amount of such liquidated damages so fixed, shall be deducted and retained by the [12] District from any money then due, or thereafter to become due, the Contractor."

(7) Subdivision e of Section 6 of said specifications reads as follows:

"Disputes.—To prevent disputes and litigation the District Engineer shall in all cases determine the amount, quality and acceptability of the work and materials which are to be paid for under these specifications. He shall determine all questions in relation to said work and materials and performance thereof and all questions which may arise relative to the fulfillment or interpretation of these specifications on the part of the Contractor. His estimate and decision shall be final and conclusive, and in case any question shall arise between the Contractor and the District pertaining to the contract the District Engineer's estimate and decision shall be a condition precedent to the right of the Contractor to receive any moneys under the contract."

(8) Subdivision h of Section 6 of said specifications reads as follows:

"Interpretation of Plans and Specifications. —Should it appear that the work to be done or any matters relative thereto are not suffi-

ciently detailed or explained in the plans and specifications, the Contractor shall apply to the District Engineer in writing for such further details and explanations as may be necessary, and he shall conform to the same as part of the contract insofar as they may be consistent with the original specifications and plans. In the event of any doubt or question regarding the true meaning of the specifications, the decision of the District Engineer shall be final. In the event of any discrepancy between any drawing and figures written thereon, figures shall be taken as correct.

"Should the Contractor believe that any work ordered is not properly a part of his contract or according to the intent of these plans and specifications, he shall before commencing same notify the District Engineer in writing of his objections to same and shall not perform such work until notified in writing by the District Engineer as to his decision in the matter. The commencement of any such work shall act as a waiver by the Contractor of any objection he may have to the execution of such work, and as a waiver of any claim for extra work in consequence of such order.

"These specifications and plans shall be considered as supplementary one to the other, so that materials and workmanship, indicated, called for, or necessarily implied by the one

and not by the other, shall be supplied and placed in the work the same as though specifically called for by both." [13]

(9) Subdivision k of Section 6 of said specifications reads as follows:

"Contractor's Liability.—On all work the Contractor is to assume all liability of every kind or nature, arising from said work, either from accident, negligence or any cause whatsoever during the progress of the work and before the final acceptance thereof, and shall indemnify and hold the District harmless therefrom, and the bonds given by the Contractor shall hold and secure the said District free and harmless from any or all damage or expense whatsoever."

(10) Subdivision s of Section 6 of said specifications reads as follows:

"Lines and Grades.—The Contractor is to furnish free of charge all stakes necessary for marking and maintaining points and lines given by the District Engineer; and shall give the District Engineer such facilities and materials for giving said lines and points as he may require, and the District Engineer's marks must be carefully preserved.

"Sufficient points to line and grade will be set for the Contractor to work to and no additional stakes will be set. Any such stakes or

marks lost, damaged or obliterated shall be replaced at the expense of the Contractor.

"The Contractor shall do his own engineering and shall be responsible for the completion of the work to proper lines and grades in conformance with the stakes set by the District Engineer.

"The District Engineer shall be furnished facilities for the checking of lines, elevations, grades and forms at all times during the progress of the work. The Contractor shall, without charge to the District, provide openings for and suspend work that will in any way interfere with the surveys, at such times and for such periods as the District Engineer may deem necessary."

(11) The part of said specifications dealing with tunnel construction contains the following provisions:

Section 32, subdivision 3:

"Safety Rules.—The Contractor shall provide himself with copies of 'Tunnel Safety Rules' and 'General Construction Safety Orders Relating to the Storage and Use of Explosives,' together with all revisions and amendments thereto, as required by the Industrial Accident Commission of the State of California and keep copies of these at the site of the work at all times. He shall consult with officials of the In-

dustrial Accident Commission and inform himself of any and all conditions which they may require, whether set forth in [14] the published rules or specially provided for on this work. He shall thoroughly familiarize himself with the provisions of said rules and all regulations of said Commission and govern all his operations by the requirements in all particulars where the same are applicable. He shall see to it that all superintendents, foremen and other employees having responsibility for the various phases of the tunnel work are likewise familiar with the provisions referred to above, and that all work is conducted in accordance therewith. The requirements concerning ventilation, general safety precautions, transportation, roof inspection, timbering, electrical installations and use of explosives are of particular importance.

"Representatives of the U. S. Bureau of Mines and of the Industrial Accident Commission of the State of California shall be afforded free access to the work at all times and be given every facility for inspecting methods, equipment and familiarity of workmen with the various safety rules and requirements.

"All Federal and State regulations for such work of parts thereof and regulations of Counties and Municipalities having local jurisdiction shall be strictly adhered to, and authorized officials representing the Federal or State gov-

ernments or Counties or Municipalities having jurisdiction shall be given every facility for inspection and proper enforcement of rules, provisions, regulations and ordinances which may apply to the conduct of the work. The Contractor shall be responsible during the entire progress of the work for the proper enforcement of all such requirements and shall assume all liabilities which may occur due to accidents of any kind or nature. The fact that no apparent violation of rules or regulations has occurred shall not serve to relieve the Contractor of his full liability or responsibility in case of accident or damage to persons, employees, or to any part of the work.

"Provisions shall be made by the Contractor for a supply of fresh air sufficient for the safety, comfort and efficiency of all persons engaged in the tunnel construction, at all times in all portions of the work. Provision shall be made for the quick removal of gases resulting from blasting and frequent tests shall be made for harmful or explosive gases emanating from the rock structure.

"Should compliance with safety rules and regulations require special equipment the Contractor shall at all times keep on hand on the work enough of such special equipment to supply, in addition to his own requirements, complete equipment for at least three men, for the

use of the District Engineer and his assistants in inspections of the work or in giving lines and grades, or as the District Engineer may direct."

(12) Subdivision 4 of Section 32 reads as follows:

"Geological Data.—A preliminary report on the geological structures through which the tunnel will pass [15] is on file in the office of the District Engineer. This report is available for inspection by prospective bidders at the office of the District Engineer. The Board of Directors of the District and the District Engineer do not guarantee in any respect the accuracy of this report or the findings or recommendations contained therein. The fact that prospective bidders are permitted to inspect this report shall not in any respect relieve prospective bidders of their responsibility to make their own investigations as to the materials which may be encountered or the geological structures, independent and separate from those made by the District, and the Contractor shall have no claim whatsoever for damages, unexpected costs, difficulties, or for the alteration or voiding of the contract, should materials encountered vary in any respect from those indicated in the preliminary report referred to."

VII.

Subsequent to the first day of June, 1936, the District Engineer of defendant estimated and cer-

tified the amount of work done by plaintiff under the terms of said contract for the month of May, 1936, less 3500 dollars stipulated damages for delay as hereinafter alleged and the sum due the plaintiff on or before June 10, 1936 under the terms of said contract, which sum was $152,086.98, and defendant on June 10, 1936 did transmit to plaintiff the sum of $148,586.98, the amount of said estimate less the sum of $3,500.00, the said retained payment of $3,500.00 being the sum of $500.00 a day for seven working days retained by defendant as agreed and liquidated damages because the said contract had not been completed within seven hundred and twenty calendar days from the time of entering into the same. The plaintiff herein did on said 13th day of June, 1936 return the amount so paid to plaintiff by defendant, with its said purported notice of rescission.

At no time did the plaintiff demand of defendant the payment of said sum of $3,500.00 or protest against the withholding of the same, nor make upon the defendant any demand whatever therefor but instead attempted to rescind said contract as aforesaid.

At no time after the tender by defendant to plaintiff of said sum of $148,586.98 or after the plaintiff had knowledge [16] that defendant had deducted the amount of liquidated damages hereinbefore referred to did the said plaintiff request the District Engineer of defendant to make any determination on said matter or to determine the said or any other

question in relation to the said work and materials furnished by the plaintiff or the performance of said contract or to the fulfillment or interpretation of any clause in the specifications, but the said plaintiff on June 13, 1936, did serve and file its said notice attempting to rescind said contract and did entirely cease all work on said project and did refuse to continue to perform any work under said contract, and ever since has and still continues so to refuse, without making any demand whatever upon defendant District to make the said payments so withheld or to have the matter determined by the District Engineer, or to submit any matter in dispute between plaintiff and defendant to said District Engineer.

The total contract price for the performance of said work was and is a sum in excess of $3,500,000. When the said plaintiff abandoned said work the work to be performed under said contract was about seventy per cent complete.

VIII

With reference to said attempted rescission said defendant alleges as follows:

(1) Defendant retained the said sum of $3,500.00 as agreed and liquidated damages because of the failure of plaintiff to complete said contract within the specified time, and defendant at all times was ready, able and willing to submit that matter to the District Engineer for determination in accordance with the provisions of subdivision (c) of Section 6 of said specifications.

(2) With reference to the claim of rescission based [17] upon defendant's failure to grant an extension of time defendant in this connection alleges that plaintiff asked for an extension of time for one hundred and eighty days on the 10th day of June, 1935, which request was refused by defendant on the 12th day of July, 1935. Notwithstanding the refusal of defendant to grant plaintiff the requested extension of time plaintiff continued from the date of said refusal until the 13th day of June, 1936, to perform work under said contract and did receive and accept from defendant during said period of time and on account of said work sums in excess of $1,000,000.

(3) With reference to the claimed right of rescission because of an alleged claim by plaintiff of difference in underground conditions stated in said notice of June 13, 1936, defendant alleges that the underground conditions were known and ascertained by plaintiff prior to the 1st day of June, 1935, and that notwithstanding plaintiff's claim that such conditions were different from defendant's representations the plaintiff did continue to perform said contract and after full knowledge of said conditions received and accepted in excess of $1,000,000 from defendant as compensation for its work under said contract.

(4) With reference to the claimed failure of defendant to furnish points, lines and grades for the work of said plaintiff and to furnish other engineering work, defendant alleges that plaintiff as

early as the 26th day of December, 1934, made a claim to defendant with reference to said matters, and defendant's position in regard thereto, namely, that plaintiff's claim was not well founded, was communicated to plaintiff as early as the 22nd day of January, 1935; that notwithstanding plaintiff's knowledge of the position taken by defendant with reference to this claim plaintiff continued to work under said contract up to and until the 13th day of June, 1936, [18] and from the time of the first making of said claim until the cessation of work plaintiff received from defendant sums in excess of $1,400,000 in connection with its work under said contract.

With reference to all of said matters stated in said notice of rescission, at no time did plaintiff request that these or any of such be submitted to the said District Engineer of defendant in order that said District Engineer might determine any and all questions in relation to said work and materials and the performance of said contract or any and all questions which had arisen relative to the fulfillment or interpretation of specifications on the part of the plaintiff, which said specifications at all times were and now are a part of said contract. Said District Engineer was never so requested by plaintiff, nor was demand made by plaintiff upon defendant to have these matters in dispute submitted to the said District Engineer for decision.

By reason of all the foregoing plaintiff has waived any right, if it ever had any such, to re-

scind the said contract because of said matters so specified in said purported notice of rescission or any of them, and any right of plaintiff to rescind, if it ever had any such, was and is waived by acquiescence, laches and delay. At no time did plaintiff have a right to rescind said contract or any part thereof.

IX.

At no time from the time of the entering into of said contract by plaintiff until the abandonment of the said work and contract on the 13th day of June, 1936, did plaintiff before commencing any work which plaintiff claimed was not properly a part of the work under said contract, notify the District Engineer in writing of plaintiff's objection to the same and [19] refusal to perform such work until notified in writing by said Engineer of his decision in the matter, but on the contrary the said plaintiff without such written objection and without any written decision by said Engineer did continue with said work and did perform all work under said contract until the 13th day of June, 1936, when the same was abandoned by plaintiff as aforesaid.

And As A Third, Separate And Further Defense to said first count said defendant alleges:

I.

At all times herein mentioned defendant was and is a Joint Highway District of the State of California organized and existing under and by virtue

of that certain act of the Legislature of the State of California known and designated as the Joint Highway District Act. Said defendant District is and was incorporated for the purpose of constructing a project in the contract between plaintiff and defendant hereinafter mentioned specifically described, said project lying wholly within the boundaries of the said District and partly within the City of Oakland, County of Alameda, and the County of Contra Costa, State of California.

II.

Subsequent to its organization the defendant District caused final surveys, plans, specifications and detailed drawings to be prepared for said project and did include therewith the final estimate of the cost of said project, and the same were approved by the board of supervisors of each of the counties within said District, namely, the Board of Supervisors of the County of Alameda and the Board of Supervisors of the County of Contra Costa, State of California, and by the Director of the [20] Department of Public Works of the State of California, and a certified copy of said final surveys, plans, specifications and detailed drawings and of said estimated cost was transmitted to the Director of said Department of Public Works of the State of California.

III.

After the approval of said final plans and specifications as aforesaid, the defendant did cause a

notice inviting sealed proposals and bids for the construction of its said project to be published twice in a newspaper of general circulation published and circulated within the District, namely, in "The Oakland Tribune," which newspaper was designated for such purpose by the Board of Directors of said District, the first publication of which notice inviting said bids was printed and published on May 7th, 1934, and not less than ten days prior to the time fixed for receiving such bids. Pursuant to said notice bids for the construction and completion of said project were received and opened on the 22nd day of May, 1934, and the bid of plaintiff for the sum of approximately $3,683,-931.00 for the construction and completion of said project and the performance of all work in connection therewith was accepted by defendant and the contract awarded to plaintiff as the lowest responsible bidder; that plaintiff was in fact the lowest responsible bidder for said work.

IV.

Thereafter, and on the 4th day of June, 1934, pursuant to said call for bids and the bid of plaintiff and the award made to plaintiff by defendant, a contract in writing was entered into between plaintiff and defendant wherein and whereby plaintiff agreed with defendant that plaintiff pursuant to the terms of said contract and for and on behalf of defendant would [21] construct, erect and complete the said project of defendant and do and per-

form all work in connection therewith, all as described in said contract and all in accordance with the final surveys, plans, specifications and detailed drawings therefor theretofore adopted by the Board of Directors of said Joint Highway District No. 13, and which said contract, plans and specifications at all times herein mentioned have been on file in the office of the defendant District and to which reference is hereby expressly made.

V.

The said contract so let pursuant to the said bid of plaintiff included all work which was to be done in connection with said project, and no other contract with plaintiff was ever let therefor nor for any part thereof, and until said work was abandoned by plaintiff no other call for bids was ever made and no other final surveys, plans, specifications, detailed drawings or estimates for said work have been made.

VI.

Pursuant to said contract of June 4, 1934, defendant from time to time has paid plaintiff the monthly progress payments provided for in said contract and continued to make such payments up and until the 13th day of June, 1936, on which date plaintiff abandoned said contract and work and refused and still refuses to continue to perform said work or to complete the said project or any part thereof.

VII.

Said plaintiff has not been requested by defendant to perform any work except the work specified in said contract, and plaintiff has performed no other work for defendant and has made no bid for any other work. The said contract of June 4, 1934, is the sole and only contract and the sole and only understanding [22] between the plaintiff and defendant for the performance of the work specified in said contract.

VIII.

Said final surveys, plans, specifications and detailed drawings so prepared by said defendant District did include a final estimate of cost, which estimate did not exceed the estimate named in the preliminary report of the District Engineer for said project. The bid of plaintiff was within the said final estimate. The purported claim of plaintiff sued upon herein exceeds its said bid and the said final estimate by a sum greatly in excess of ten per cent of said final estimate. There has been no approval by the Board of Supervisors of any County comprising said District or of the Director of the Department of Public Works of the State of California of the said increase in costs sought to be recovered by plaintiff herein. The State of California has contributed a part of the cost of said project, namely, the sum of $700,000.

IX.

Defendant has no power nor authority to contract for construction work except as authorized by the

provisions of said Joint Highway District Act, and any attempt upon the part of said defendant District or any of its officers or employees to create a liability for construction purposes other than as in said Act provided, after public notice and call for bids, is ultra vires and void.

And As A Fourth, Separate And Further Defense to said first count and by way of counterclaim said defendant alleges:

I.

Defendant repeats and hereby incorporates as a part of this defense and counterclaim the allegations of paragraphs [23] I, II, III and IV of its third separate defense to said first count herein.

II.

Plaintiff proceeded with the work specified to be done in said contract of June 4, 1934, between the plaintiff and defendant, and continued with said work up to and including the 13th day of June, 1936, upon which date the plaintiff abandoned the said contract and the said work and then and there refused and ever since has refused to continue with the same or to further perform said agreement or any part thereof.

III.

Upon the abandonment of said contract by plaintiff it became necessary for defendant: (a) to protect and maintain said work in the unfinished state

in which it had been left upon the abandonment of said contract; (b) to measure said work in order to call for bids for the completion of the same, and to prepare and secure approval of supplemental specifications by the Department of Public Works of the State of California and the Public Works Emergency Administration of the United States for the completion of the work; (c) to readvertise for bids for such completion; and (d) to secure insurance protecting the defendant against loss by fire and against certain other hazards hereinafter mentioned.

In connection with the maintenance and protection of said work it was necessary for defendant to employ engineers, watchmen and laborers, and to secure materials, supplies and equipment. The reasonable cost of all such protection and maintenance at all times herein mentioned was and is the sum of $47944.33.

At all times herein mentioned the reasonable cost of measuring said work and of completing said specifications was [24] and is the sum of $5134.22.

In order to secure bids for new contracts to complete the work it was necessary to readvertise for such purpose, and at all times herein mentioned the reasonable cost of such advertising was and is the sum of $1862.45.

Upon such abandonment by plaintiff the defendant did secure fire insurance protecting the defendant against the hazard of fire to its property and equipment in said project, and did also secure

Workmen's Compensation and Liability insurance protecting the defendant against claims for injury to any of its employees and for damage or injury to others by reason of the operations of the defendant in maintaining and protecting said work; the reasonable cost of all said insurance at all times herein mentioned was and is the sum of $14060.85.

Said sums in this paragraph mentioned in the aggregate amount to $69001.85, and at all times herein mentioned were and are reasonable.

IV.

Said contract provided for progress payments to be made each month by defendant to plaintiff for work done during the preceding month and said contract also provided for the retention by defendant of a sum which in the aggregate should not exceed ten per cent of the contract price, said retained sum to be paid to plaintiff thirty-five days after the completion of the contract by plaintiff. Prior to said default of plaintiff, defendant had paid to plaintiff the sum of $2,021,047.11, which sum represented ninety per cent of the contract price for work done by plaintiff for defendant prior to May 1, 1936, and the defendant retained from said progress payments the sum of $224,560.79, or ten per cent of the contract price for work done prior to May 1, 1936. Plaintiff refused to accept the sums [25] tendered by defendant for work performed by plaintiff after May 1, 1936, and defendant has in its possession the sum of $265,891.82 for all work

performed by plaintiff after May 1, 1936, as per estimate and also the said sum of $224,560.79 the said retained percentage above referred to, also a credit for plaintiff of $2806.55 for partly performed work less $10,000 liquidated damages retained by defendant, said sums aggregating $493,259.16.

The reasonable cost of completing the work agreed to be done by plaintiff which remained uncompleted when plaintiff abandoned the same was and is the sum of $1,751,611.74. Said sum exceeds the sum specified in said contract of June 4, 1934, to be paid by defendant to plaintiff for such work by the sum of $591,325.47. The difference between this last mentioned amount and the sum of $483,259.16, the aggregate amount still retained by defendant for work done by plaintiff prior to the abandonment of the contract (less liquidated damages of $10,000 retained) is the sum of $108,066.31, which last mentioned sum is the reasonable increased cost of completing the work over the contract price because of plaintiff's default, less credit to plaintiff for any sums heretofore earned by plaintiff and still in defendant's possession.

V.

Under the provisions of said contract of June 4, 1934, the time when plaintiff was to complete all of the work expired on the 24th day of May, 1936, and when said work was abandoned by plaintiff on June 13, 1936, plaintiff was in default in the completion of said work for a period of twenty days.

Upon the abandonment of said work by plaintiff it became necessary for defendant to measure said work in order that it could call for bids to complete the same, to prepare and secure approval of supplemental specifications by the Department of Public Works of the State of California and the Public Works Emergency Administration of the United States for the completion of the work, and to readvertise for bids for such completion and [26] to enter into contracts therefor. The time required for all of said purposes was one hundred and forty-nine days and the said period of time was and is a reasonable time therefor, and said defendant did proceed with all reasonable dispatch and due diligence so to do.

The first new contract for the completion of the work was entered into on the 9th day of November, 1936, and the reasonable time for the completion of all said work was and is a period of two hundred and sixty-four days from and after said last mentioned date.

The periods of delay in the completing of said work caused by the default of said plaintiff are as follows: A period of twenty days from May 24, 1936, when said time for completion expired, to June 13, 1936, when plaintiff abandoned said contract; a period of one hundred and forty-nine days, the reasonable time to measure the said work remaining to be done after plaintiff's default in order to call for bids for the completion of the contract and to secure approval of supplemental specifica-

tions by the Department of Public Works of the State of California and the Public Works Emergency Administration of the United States, and to readvertise for bids for the completion of said work and to enter into the first new contract therefor; a period of two hundred and sixty-four days, the reasonable time for the completion of all said work after the entering into of said new contract. All said periods of time were and are reasonable and amount in the aggregate to four hundred and thirty-three (433) days delay in the completion of said work, all caused by the action and default of plaintiff.

VI.

It is provided in said contract of June 4, 1934, that the said contractor, plaintiff herein, shall pay to the defendant [27] as agreed and liquidated damages $500 for each and every working day which may elapse between the limiting date provided in said contract and the date of the actual completion of the work, and that said sum is specifically agreed upon between the parties as a measure of damage to the defendant by reason of delay in the completion of the work, it being expressly understood and agreed that it would be impracticable to estimate and ascertain the actual damage sustained by the defendant District because of such delay.

VII.

In this connection defendant alleges that it is and at all times herein mentioned was extremely diffi-

cult to estimate the damage which would be sustained by defendant because of any delay in the completion of the project of defendant District. The work to be done by said plaintiff for the defendant consisted of the construction of a highway tunnel and approaches and appurtenances, a portion of one of the main highways in Alameda and Contra Costa Counties; said highway connects with and is a part of the State system of highways at either extremity of said work. Said route is a main artery of travel from the San Joaquin Valley to the congested East Bay area in Alameda and Contra Costa Counties and also leading across the new bridge from the City of Oakland to the City and County of San Francisco. From a large area of the State it is a more practical, direct and safer route than any highway now in existence connecting the points above mentioned and is greatly needed by the traveling public.

Defendant's project provides a modern highway of low gradients between Walnut Creek, Contra Costa County, and the business center of Oakland, approximately one and one-half miles shorter than the Claremont Road and approximately two and one-half miles shorter than the Tunnel Road, the present highways, [28] each of which is a narrow highway of steep gradients and sharp curves and which now carry a combined traffic in excess of 1,600,000 vehicles per year, all of which traffic can be more safely and economically transported over the new route. The resulting loss, inconvenience

and damage caused by the delay in opening the project to use as a public highway is exceedingly great and is impracticable of exact ascertainment but exceeds $500 per day.

In this connection defendant further alleges that because of plaintiff's abandonment and the necessary delay required for the letting of new contracts, and because of the delay in completing said work, defendant has been and will be required until the work is completed to maintain a large staff of engineers and other employees and keep an active District organization intact, all at a reasonable cost to said District of approximately $288 a day, which cost will be entirely eliminated upon the completion of said project, which expense to defendant results solely from the delay caused by plaintiff's default in the performance of said contract. Said cost and expense in this paragraph alleged is in addition to any claim for damage specified in paragraphs III and IV of this defense and counterclaim.

Defendant has financed the cost of said project by the issuance of bonds upon which defendant must pay interest, and defendant will pay in interest for the said period of four hundred and thirty-three (433) days delay caused by the default of said plaintiff, without having the enjoyment of said project, a sum in excess of $89,832.67.

For the reasons above stated and because of the difficulty in ascertaining the actual damage, the parties agreed upon liquidated damages as aforesaid. [29]

VIII.

Defendant asserts by way of counterclaim against the said plaintiff the following: The sum of $69,-001.85, the reasonable cost of protection and measuring the work and of the other matters hereinbefore in paragraph III hereof alleged; the sum of $108,066.31, the increased reasonable cost for completing the contract abandoned by plaintiff in excess of all credits due plaintiff for work heretofore performed by plaintiff for defendant under said contract, the sum of $206,500.00 as agreed and liquidated damages; said sums amount in the aggregate to $383,568.16, and no part thereof has been paid.

And For Answer to the Second Count or Cause of Action stated in the complaint of plaintiff on file herein said defendant admits, avers, denies and alleges as follows:

I.

Denies that within two years last past or at any other time or at all said defendant became indebted to plaintiff for work done or labor performed or materials furnished by said plaintiff to said defendant, or otherwise or at all, of the reasonable or any value of $5,280,742.15, or in any other sum whatever or at all, and denies that said or any sum was or is the reasonable or any value of said work done or labor performed or materials furnished.

Denies that no part of said sum has been paid except the sum of $2,021,047.11, and in this connection said defendant expressly alleges that it has

paid said plaintiff any and all sums that were or are owing or due from defendant to plaintiff, and denies that there is now due or owing or unpaid from defendant to plaintiff on account of any work done or labor performed or materials furnished, or otherwise, or at all the [30] further sum of $3,259,-695.04 or interest thereon or any sum at all in any amount whatever.

And As A Second, Separate And Further Defense to said Second Count said defendant alleges:

I.

Defendant repeats and hereby incorporates as a part of this defense each and all of the allegations hereinbefore set forth in paragraphs I, II, III, IV, V, VI, VII, VIII and IX of its second and separate defense to the first count or cause of action of plaintiff's complaint and makes each and all of said allegations a part of this its second defense to the said second count contained in said complaint as fully as though each and all of said allegations were herein specifically repeated.

And As A Third, Separate And Further Defense to said second count said defendant alleges:

I.

Defendant repeats and hereby incorporates as a part of this defense each and all of the allegations hereinbefore set forth in paragraphs I, II, III, IV, V, VI, VII, VIII and IX of its third and separate

defense to the first count or cause of action of plaintiff's complaint and makes each and all of said allegations a part of this its third defense to the said second count contained in said complaint as fully as though each and all of said allegations were herein specifically repeated.

And As A Fourth, Separate And Further Defense to said second count and by way of counterclaim said defendant alleges:

I.

Defendant repeats and hereby incorporates as a part [31] of this defense and counterclaim the allegations of paragraphs I, II, III and IV of its third and separate defense to said first count herein and makes each and all of said allegations a part of this its fourth separate and further defense and counterclaim to the said second count contained in said complaint as fully as though each and all of said allegations were herein specifically repeated.

II.

Defendant repeats and hereby incorporates as a part of this defense and counterclaim the allegations of paragraphs II, III, IV, V, VI, VII and VIII of its fourth, separate and further defense and counterclaim to the first count or cause of action stated in plaintiff's complaint and makes each and all of said allegations a part of this its fourth, separate and further defense and counterclaim to said second count contained in said complaint as fully

as though each and all of said allegations were herein specifically repeated. [32]

CROSS-COMPLAINT

Without waiving any of the allegations of its answer herein and by way of cross-complaint, said defendant complains of plaintiff and cross-defendant, and of each and every of the above named cross-defendants, and for cause of action alleges:

I.

Defendant and cross-complainant, Joint Highway District No. 13 of the State of California, at all the dates and times herein mentioned was and is now a public corporation duly organized and existing under and by virtue of the laws of the State of California, particularly that certain act known and designated as the Joint Highway District Act.

II.

Plaintiff and cross-defendant, Six Companies of California, at all the dates and times herein mentioned was and is now a corporation duly incorporated, organized and existing under and by virtue of the law of the State of Nevada.

III.

Each of the cross-defendants hereinafter mentioned, at all the dates and times herein mentioned, was and is now a corporation duly incorporated,

organized and existing under and by virtue of the laws of one of the several states of the Union as hereinafter in this paragraph respectively designated for each of said respective cross-defendants:

(a) Hartford Accident and Indemnity Company, a Connecticut corporation;

(b) Fidelity and Deposit Company of Maryland, a Maryland corporation;

(c) The Aetna Casualty and Surety Company, a Connecticut corporation; [33]

(d) Indemnity Insurance Company of North America, a Pennsylvania corporation;

(e) American Surety Company of New York, a New York corporation;

(f) Fireman's Fund Indemnity Company, a California corporation;

(g) Maryland Casualty Company, a Maryland corporation;

(h) United States Fidelity and Guaranty Company, a Maryland corporation;

(i) The Fidelity and Casualty Company of New York, a New York corporation;

(j) Glens Falls Indemnity Company, a New York corporation;

(k) Standard Surety And Casualty Company of New York, a New York corporation;

(l) Standard Accident Insurance Company, a Michigan corporation;

(m) Pacific Indemnity Company, a California corporation;

(n) Massachusetts Bonding And Insurance Company, a Massachusetts corporation;

(o) Continental Casualty Company, an Indiana corporation;

(p) New Amsterdam Casualty Company, a New York corporation.

IV.

On the 4th day of June, 1934, a contract in writing was entered into between Six Companies of California, a corporation, plaintiff herein, and defendant, wherein and whereby plaintiff agreed with defendant that the plaintiff pursuant to the terms [34] of said contract and for and on behalf of defendant would construct, erect and complete the project of the defendant in said contract specifically described and do and perform all work in connection therewith, all as more fully described in said contract and all in accordance with the final surveys, plans, specifications and detailed drawings therefor theretofore adopted by the Board of Directors of said defendant Joint Highway District No. 13, and which said contract, plans and specifications at all times herein mentioned have been on file in the office of the defendant District and to which reference is hereby made.

V.

Plaintiff as said contractor did, upon the delivery of said contract to the defendant, deliver with said contract and annexed thereto a certain bond for the

faithful performance of said contract, which bond was executed by the plaintiff and cross-defendant and by each of the other cross-defendants above mentioned. Said bond when delivered was annexed to said contract and was a part thereof.

The bond above referred to, so made, executed and delivered by the plaintiff and cross-defendant and by each and every of the other cross-defendants to the defendant and cross-complainant herein, is hereto attached marked Exhibit "A" and expressly made a part hereof for all purposes.

VI.

Plaintiff proceeded with the work specified to be done in said contract between plaintiff and defendant and continued with said work up to and including the 13th day of June, 1936, upon which date the plaintiff abandoned the said contract and the said work and then and there refused, and ever since has refused, to continue with the same or to further perform said agreement or any part thereof. [35]

VII.

Upon the abandonment of said work defendant notified plaintiff and cross-defendant and each of the other cross-defendants that it considered the action of plaintiff in refusing to perform said contract an abandonment thereof, and said defendant and cross-complainant caused notice to be served upon plaintiff and cross-defendant and upon each and every of the other cross-defendants to resume

work within three days after the receipt of said notice or the said defendant would construe said acts of the plaintiff as a final abandonment of said contract; a copy of which said notice so delivered to the plaintiff and cross-defendant and to all of the other cross-defendants herein is hereinbefore set forth in paragraph IV of defendant's second, separate and further defense to the first count of the complaint of plaintiff on file herein, to which reference is hereby expressly made.

VIII.

Notwithstanding the receipt of said notice by said plaintiff and cross-defendant and by each of the other cross-defendants the said plaintiff and cross-defendant, and each of the other cross-defendants, then and there refused and ever since have refused to continue with the said work or to further perform said contract or any part thereof or any of the work thereunder.

IX.

Upon the abandonment of said contract by plaintiff it became necessary for defendant: (a) to protect and maintain said work in the unfinished state in which it had been left upon the abandonment of said contract; (b) to measure said work in order to call for bids for the completion of the same and to prepare and secure approval of supplemental specifications by the Department of Public Works of the State of California and the [36] Public Works Emergency Administration of the United

States for the completion of the work; (c) to readvertise for bids for such completion. and (d) to secure insurance protecting the defendant against loss by fire and against certain other hazards hereinafter mentioned.

In connection with the maintenance and protection of said work it was necessary for defendant to employ engineers, watchmen and laborers, and to secure materials, supplies and equipment. The reasonable cost of all such protection and maintenance at all times herein mentioned was and is the sum of $47,944.33.

At all times herein mentioned the reasonable cost of measuring said work and of completing said specifications was and is the sum of $5,134.22.

In order to secure bids for new contracts to complete the work it was necessary to readvertise for such purpose, and at all times herein mentioned the reasonable cost of such advertising was and is the sum of $1,862.45.

Upon such abandonment by plaintiff the defendant did secure fire insurance protecting the defendant against the hazard of fire to its property and equipment in said project, and did also secure Workmen's Compensation and Liability insurance protecting the defendant against claims for injury to any of its employees and for damage or injury to others by reason of the operations of the defendant in maintaining and protecting said work; the reasonable cost of all of said insurance at all times

herein mentioned was and is the sum of $14,060.85.

Said sums in this paragraph mentioned in the aggregate amount to $69,001.85, and at all times herein mentioned were and are reasonable. [37]

X.

Said contract provided for progress payments to be made each month by defendant to plaintiff for work done during the preceding month and said contract also provided for the retention by defendant of a sum which in the aggregate should not exceed ten per cent of the contract price, said retained sum to be paid to plaintiff thirty-five days after the completion of the contract by plaintiff. Prior to said default of plaintiff, defendant had paid to plaintiff the sum of $2,021,047.11, which sum represented ninety per cent of the contract price for work done by plaintiff for defendant prior to May 1, 1936, and the defendant retained from said progress payments the sum of $224,560.79, or ten per cent of the contract price for work done prior to May 1, 1936. Plaintiff refused to accept the sums tendered by defendant for work performed by plaintiff after May 1, 1936, and defendant has in its possession the sum of $265,891.82 for all work performed by plaintiff after May 1, 1936, as per estimate and also the said sum of $224,560.79 the said retained percentage above referred to, also a credit for plaintiff of $2,806.55 for partly performed work said sums aggregating $493,259.16 less liquidated damages of $10,000 retained by defendant.

The reasonable cost of completing the work agreed to be done by plaintiff which remained uncompleted when plaintiff abandoned the same was and is the sum of $1,751,611.74. Said sum exceeds the sum specified in said contract of June 4, 1934, to be paid by defendant to plaintiff for such work by the sum of $591,325.47. The difference between this last mentioned amount and the sum of $483,-259.16, the aggregate amount still retained by defendant for work done by plaintiff prior to the abandonment of the contract (less liquidated damages of $10,000 retained) is the sum of $108,066.31, which last mentioned sum is the reasonable increased cost of completing the work over the contract price because of plaintiff's default, less credit to plaintiff for any sums heretofore earned by [38] plaintiff and still in defendant's possession.

XI.

Under the provisions of said contract of June 4, 1934, the time when plaintiff was to complete all of the work expired on the 24th day of May, 1936, and when said work was abandoned by plaintiff on June 13, 1936, plaintiff was in default in the completion of said work for a period of twenty days.

Upon the abandonment of said work by plaintiff it became necessary for defendant to measure said work in order that it could call for bids to complete the same, to prepare and secure approval of supplemental specifications by the Department of Public Works of the State of California and the

Public Works Emergency Administration of the United States for the completion of the work, and to readvertise for bids for such completion and to enter into contracts therefor. The time required for all of said purposes was one hundred and forty-nine days and the said period of time was and is a reasonable time therefor, and said defendant did proceed with all reasonable dispatch and due diligence so to do.

The first new contract for the completion of the work was entered into on the 9th day of November, 1936, and the reasonable time for the completion of all said work was and is a period of two hundred and sixty-four days from and after said last mentioned date.

The periods of delay in the completing of said work caused by the default of said plaintiff are as follows: A period of twenty days from May 24, 1936, when said time for completion expired, to June 13, 1936, when plaintiff abandoned said contract; a period of one hundred and forty-nine days, the reasonable time to measure the said work remaining to be done after plaintiff's default in order to call for bids for the completion of the contract and to secure approval of supplemental [39] specifications by the Department of Public Works of the State of California and the Public Works Emergency Administration of the United States, and to readvertise for bids for the completion of said work and to enter into the first new contract therefor; a period of two hundred and sixty-four days, the

reasonable time for the completion of all said work after the entering into of said new contract. All said periods of time were and are reasonable and amount in the aggregate to four hundred and thirty-three (433) days delay in the completion of said work, all caused by the action and default of plaintiff.

XII.

It is provided in said contract of June 4, 1934, that the said contractor, plaintiff herein, shall pay to the defendant as agreed and liquidated damages $500 for each and every working day which may elapse between the limiting date provided in said contract and the date of the actual completion of the work, and that said sum is specifically agreed upon between the parties as a measure of damage to the defendant by reason of delay in the completion of the work, it being expressly understood and agreed that it would be impracticable to estimate and ascertain the actual damage sustained by the defendant District because of such delay.

XIII.

In this connection defendant alleges that it is and at all times herein mentioned was extremely difficult to estimate the damage which would be sustained by defendant because of any delay in the completion of the project of defendant District. The work to be done by said plaintiff for the defendant consisted of the construction of a highway tunnel and approaches and appurtenances, a portion

of one of the main highways in Alameda and Contra Costa Counties; said highway connects with and is a part [40] of the State system of highways at either extremity of said work. Said route is a main artery of travel from the San Joaquin Valley to the congested East Bay area in Alameda and Contra Costa Counties and also leading across the new bridge from the City of Oakland to the City and County of San Francisco. From a large area of the State it is a more practical, direct and safer route than any highway now in existence connecting the points above mentioned and is greatly needed by the traveling public.

Defendant's project provides a modern highway of low gradients between Walnut Creek, Contra Costa County, and the business center of Oakland, approximately one and one-half miles shorter than the Claremont Road and approximately two and one-half miles shorter than the Tunnel Road, the present highways, each of which is a narrow highway of steep gradients and sharp curves and which now carry a combined traffic in excess of 1,600,000 vehicles per year, all of which traffic can be more safely and economically transported over the new route. The resulting loss, inconvenience and damage caused by the delay in opening the project to use as a public highway is exceedingly great and is impracticable of exact ascertainment but exceeds $500 per day.

In this connection defendant further alleges that because of plaintiff's abandonment and the neces-

sary delay required for the letting of new contracts, and because of the delay in completing said work, defendant has been and will be required until the work is completed to maintain a large staff of engineers and other employees and keep an active District organization intact, all at a reasonable cost to said District of approximately $272.89 a day, which cost will be enfirely eliminated upon the completion of said project, which expense to defendant results solely from the delay caused by plaintiff's default in [41] the performance of said contract. Said cost and expense in this paragraph alleged is in addition to any claim for damage specified in paragraphs IX and X of this cross-complaint.

Defendant has financed the cost of said project by the issuance of bonds upon which defendant must pay interest, and defendant will pay in interest for the said period of four hundred and thirty-three (433) days delay caused by the default of said plaintiff, without having the enjoyment of said project, a sum in excess of $89,832.67.

For the reasons above stated and because of the difficulty in ascertaining the actual damage the parties agreed upon liquidated damages as aforesaid.

XIV.

The aggregate damages above referred to which defendant claims by way of cross-complaint are as follows: the sum of $69,001.85, the reasonable cost of protecting and measuring the work and of the other matters hereinbefore in paragraph IX hereof

alleged; the sum of $108,066.31, the increased reasonable cost for completing the contract abandoned by plaintiff in excess of all credits due plaintiff for work heretofore performed by plaintiff for defendant under said contract, as hereinbefore in paragraph X hereof alleged, and the sum of $206,500.00 as agreed and liquidated damages; said sums amount in the aggregate to $383,568.16, and no part thereof has been paid.

Wherefore, defendant and cross-complainant prays judgment as follows:

(a) That plaintiff take nothing by its said complaint;

(b) That defendant and cross-complainant have judgment against the plaintiff and cross-defendant for the sum of [42] $383,568.16, the aggregate amount of damages sustained by defendant and cross-complainant because of the default of said plaintiff and cross-defendant as aforesaid;

(c) That defendant and cross-complainant have judgment against each and every of the other cross-defendants for the proportion of the said sum of $383,568.16 represented by the respective percentages of liability assumed by each of said other cross-defendants on the said bond given by such cross-defendants collectively for the faithful performance of said contract upon the part of the plaintiff;

(d) For such other, further and additional relief as may be meet and proper; and

(e) For defendant and cross-complainant's costs of suit herein incurred.

ARCHIBALD B. TINNING,
T. P. WITTSCHEN,
Attorneys for Defendant and Cross-Complainant. [43]

State of California,
County of Contra Costa—ss.

Harry M. Stow, being duly sworn, deposes and says:

That he is and was at all the dates and times herein mentioned an officer, to-wit, the Secretary, of Joint Highway District No. 13 of the State of California, a public corporation, defendant and cross-complainant herein; that he has read the foregoing Answer and Cross-Complaint and knows the contents thereof and that the same is true of his own knowledge except as to the matters therein stated on information and belief, and as to those matters he believes it to be true; that he makes this verification for and on behalf of said defendant and cross-complainant.

HARRY M. STOW,

Subscribed and sworn to before me this 16th day of December, 1936.

[Notarial Seal] ELIZABETH KING,
Notary Public in and for the County of Contra Costa, State of California. [44]

[Clerk's Note: Exhibit A to Cross Complaint is here omitted as same is set out as Plaintiff's Exhibit 18 in the Book of Exhibits.]

[Title of District Court and Cause.]

ANSWER TO CROSS-COMPLAINT

Comes, now, Six Companies of California, plaintiff and cross-defendant above named, and answers the cross-complaint on file herein by defendant and cross-complainant, and admits, denies and alleges as follows:

I.

Admits the allegations contained in paragraph I, II [54] and III of the cross-complaint.

II.

Answering the allegations contained in paragraph IV of the cross-complaint admits that a contract in writing was entered into between plaintiff and defendant on the 4th day of June, 1934, but denies each and all the remaining allegations in said paragraph contained, commencing with the word "wherein" on line 30 of page 30 of the cross-complaint to and including the end of said paragraph on line 10 on page 31 of the cross-complaint.

III.

Admits the allegations contained in paragraph V of the cross-complaint.

IV.

Answering the allegations contained in paragraph VI of said cross-complaint plaintiff denies that on June 13th, 1936, or at any time, or at all, it abandoned said contract, or the work to be done thereunder. In this connection plaintiff alleges that on

June 13th, 1936, plaintiff, for good and sufficient reasons and in accordance with law, as hereinafter more specifically stated, duly rescinded said contract and that since said date plaintiff has done no work under said contract.

V.

Answering the allegations contained in paragraph VII of the cross-complaint denies each and all, generally and specifically the allegations in said paragraph contained, save and except that plaintiff admits a notice was sent in the form stated in said paragraph by defendant to plaintiff.

VI.

Answering the allegations contained in paragraph VIII of said cross-complaint, plaintiff admits that, after rescinding said contract on June 13th, 1936, it has refused further to perform the same or do any work thereunder and denies generally [55] and specifically each and every other allegation in said paragraph contained.

VII.

Answering the allegations contained in paragraph IX of said cross-complaint, plaintiff denies that it ever abandoned said contract and alleges that it has no information or belief concerning the other matters or allegations set forth in said paragraph and placing its denial on that ground denies generally and specifically each and every of said other matters or allegations and statements of fact in said paragraph contained.

VIII.

Answering the allegations contained in paragraph X of said cross-complaint plaintiff admits the allegation commencing with the word "said" in line 2 and ending with the word "plaintiff" in line 8; denies the allegations contained in said paragraph commencing with the word " prior" in line 8 and ending with the figures "1936" in line 14, except that plaintiff admits that it has received from defendant the sum of $2,021,047.11 and defendant has retained at least the sum of $224,560.79. Plaintiff admits the allegations contained in said paragraph commencing with the word "plaintiff" in line 14 and ending with the figures "490,452.61" in line 19, except that the amounts therein are less than the full amount of money due and payable from defendant to plaintiff for work done by plaintiff for defendant, as more particularly hereinafter in this answer alleged.

Further answering the allegations contained in paragraph X of said cross-complaint, plaintiff denies that the reasonable cost of completing the work described in said contract between it and defendant was or is the amount of $1,725,000.00 or, as plaintiff is informed and believes and accordingly alleges, any other sum in excess of the amount of approximately $1,000,000.00 [56] However, plaintiff does not admit or deny that the cost of completing the project of defendant is or will be $1,725,000.00 and in this connection plaintiff alleges that it never agreed, in said contract, or otherwise,

to construct the tunnels being constructed as a part of said project in the manner in which it is necessary in fact to construct the same, because of the conditions of the ground in which the same are being constructed, and that any cost of completing the project of said defendant in excess of the amount of approximately $1,000,000.00 is due to the fact that said tunnels are being, and because of the nature of the ground, must be, constructed in a manner radically different from that specified in said contract and the plans and specifications forming a part thereof.

Further answering the allegations of said paragraph plaintiff, except as hereinbefore expressly admitted, denies generally and specifically each and every allegation in said paragraph contained.

IX.

Answering the allegations contained in paragraph XI of the cross-complaint, denies each and all, generally and specifically, the allegations in said paragraph contained, save and except plaintiff admits it will take 264 days from the commencement of such work to complete the remainder of the construction of the project described in the answer and cross-complaint.

X.

Answering the allegations contained in paragraph XII of said cross-complaint, plaintiff alleges that said contract provides as follows:

"Section 4. Time

"(a) Commencement of Work.—The Contractor shall commence work within ten (10) days after the execution of the contract for the work by the Board of Directors and shall continue without interruption unless otherwise directed by the [57] District. At least three (3) days before starting, the Contractor shall notify the District Engineer in writing of the date that work is to commence.

"(b) Completion of Work.—The time of completion of the entire work specified herein shall be within a period of seven hundred and twenty (720) calendar days from the date of the execution of the contract by the Board of Directors.

"(c) Extension of Time.—The time during which the Contractor is delayed in said work by Acts of God, or by stormy or inclement weather, or by any reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the Contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof.

"(d) Damages for Delay.—The parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the con-

tract or within such extensions of the contract time as may be allowed as herein provided, it is distinctly understood and agreed that the Contractor shall pay the District as agreed and liquidated damages and not as a penalty five hundred dollars ($500.00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work, said sum being specifically agreed upon as a measure of damage to the District by reason of delay in the completion of the work; it being expressly stipulated and agreed that it would be impracticable to estimate and ascertain the actual damages sustained by the District under such circumstances. and the Contractor agrees and consents that the amount of such liquidated damages so fixed, shall be deducted and retained by the District from any money then due, or thereafter to become due, the Contractor."

Plaintiff denies each and every allegation in said paragraph inconsistent with the provision of said contract quoted in this paragraph of this answer.

XI.

Answering the allegations of paragraph XIII of said cross-complaint, plaintiff denies all of the allegations contained in the first four lines of said paragraph; denies that the resulting, or any loss, or inconvenience, or delay in opening said project to use as a public highway is exceedingly [58] great, or is great at all, and denies that any such loss is imprac-

ticable of exact ascertainment or that it exceeds $500.00 per day or any other sum of money whatever and in this connection plaintiff alleges that defendant has suffered no loss through any delay in completing said project which may not be exactly ascertained.

Further answering the allegations contained in said paragraph, plaintiff denies that it abandoned said contract, or the work to be done thereunder, or that there was necessary any delay in letting new contracts, or that because of delay in completing the work defendant has been, or will be, required to maintain a large, or any, staff of engineers or other employees, or any engineers, or employees whatever, or keep an active District organization intact at a reasonable, or other, cost to said defendant of $288.00 per day, or any other sum of money whatever; denies that on completion of the project of defendant all such costs will be eliminated; denies that any expense of defendant results, or has resulted, solely, or otherwise, from any delay caused by plaintiff's default or any delay caused by plaintiff at all in the performance of said contract, or otherwise, or at all; denies that defendant must, or will, pay interest on any bonds referred to in said cross-complaint, or otherwise, for the period of 433 days, or for any period of time whatsoever on account of any delay caused by any default of plaintiff, or otherwise caused by plaintiff, in the amount of $82,000.00 or in any other amount whatsoever; denies that there was any delay in the construction of said project caused by any default of plaintiff.

Plaintiff denies all of the allegations contained in lines 10 to 12 inclusive, on page 38, of said cross-complaint.

XII.

Answering the allegations contained in paragraph XIV of the cross-complaint denies each and all, generally and specifically the allegations in said paragraph contained. [59]

For a second, separate and further defense to said cross-complaint, plaintiff alleges:

I.

That heretofore and on or about the 4th day of May, 1934, defendant advertised for bids to be made to it for the construction of the project described in the answer and cross-complaint, and invited bidders to submit bids therefor based upon the notice to bidders, plans, specifications and geological report furnished to bidders or made available to bidders in connection with any bid made; and that pursuant to said notice to bidders and based upon the representations to bidders contained in the plans and specifications and geological report, plaintiff submitted a bid for the doing of the work described in the notice to bidders aforesaid.

Thereafter the bid of plaintiff was duly accepted and a contract in writing entered into between plaintiff and defendant pursuant to the bid made by plaintiff, to which contract reference is hereby made for a full statement of the details thereof, and to the documents referred to therein for a full state-

ment of the details of same, with the same force and effect as if same were set forth in this answer, it being impracticable to fully set forth true copies of said contract and all documents referred to in the notice to bidders, plans and specifications as a part of this answer, and same being readily available in the records of defendant, which is a public corporation.

Plaintiff was induced to bid, and did bid solely upon the representations contained in the plans, specifications and geological report to which the attention of bidders was invited; and plaintiff relied upon all the representations therein contained in making its bid and in entering into a contract with the defendant pursuant to such bid, and would not have made said bid or entered into such contract, except for the [60] representations contained in the plans, specifications and geological report.

II.

That in and by the plans and specifications, and the geological report it was represented by defendant to plaintiff that the tunnels described therein would be driven through ground which was self-supporting in character for ninety percent or more of the total length of said tunnels, and which could be constructed and would be required to be constructed with the use only of temporary timber supports for the excavation of said tunnels which would be removed before the installation therein of the concrete lining or permanent structure thereof pro-

vided to be built therein under the plans and specifications.

That in truth and in fact said representations were false in that the entire length of the tunnels to be constructed was in ground which was not self-supporting, and which required permanent timbering or other support until and after the installation therein of the permanent concrete lining or structure thereof, and required all of the support placed therein prior to permanent lining to remain without removal from said tunnels.

III.

After entering into said contract with defendant, as aforesaid, plaintiff commenced work thereunder, and undertook the construction of said tunnels under and in accordance with the plans and specifications and in the belief that the representations contained in the plans and specifications and the geological report were true and correct. As the construction of said tunnels progressed, plaintiff found that the ground through which same were being driven was not self-supporting, and that all temporary support for the excavation for same was required of necessity to remain permanently. [61]

IV.

By reason of the character of ground encountered in the excavation and construction of said tunnels as aforesaid, plaintiff was necessarily required to and did expend large sums of money for labor to excavate and construct said tunnels in excess of that which would have been spent by plaintiff in the

event the construction of same could have been performed in accordance with the representations made as aforesaid, and also was compelled to and did expend large sums for materials and for the proper prosecution of the work in excess of what would otherwise have been necessary.

V.

It was never within the contemplation of said contract or of the parties to it that said tunnels should be constructed in said manner or through ground of the character and type actually encountered and plaintiff was not, therefore, obligated or required by said contract to so construct said tunnels and is entitled to recover from defendant the reasonable value of the work done by it in constructing said tunnels and a reasonable profit.

VI.

That for the reason, among others, that the condition of said ground had been misrepresented by defendant to plaintiff, as hereinbefore stated and that the work of constructing said tunnels was so radically different from that required by the contract, plaintiff, on June 13th, 1936, rescinded said contract and delivered to defendant the notice of rescission a copy of which is set forth in paragraph III of defendant's second, separate and further defense to the first count of the complaint herein.

Upon said delivery of said notice of rescission plaintiff ceased all work on said project and has not since [62] performed any work thereon and said contract thereupon was rescinded.

For a third and further and separate defense to said cross-complaint, plaintiff alleges:

I.

Plaintiff here repeats and incorporates as a part of this defense the allegations of paragraphs I to VI, inclusive, of its second defense hereinabove in this answer set forth.

II.

The ground condition aforesaid was understood by both plaintiff and defendant and contemplated by both of them to be in accordance with the plans and specifications and the representations contained therein and in the geological report referred to therein; and said contract was entered into in the contemplation by both parties that self-supporting ground would be encountered in the excavation and construction of the tunnels for ninety per cent, or more, of the length thereof, all as hereinbefore alleged; and each party to said contract was mistaken as to the true facts; and by reason of such mistake plaintiff was relieved of any obligation further to perform said contract, and was entitled to rescind and did rescind same in accordance with its notification to defendant to that effect on June 13th, 1936.

For a fourth and further and separate defense to said cross-complaint, plaintiff alleges:

I.

Plaintiff here repeats and incorporates as a part of this defense the allegations of paragraphs I to

VI, inclusive of its second defense hereinabove in this answer set forth. [63]

II.

That plaintiff was ignorant of, and mistaken as to, the ground condition to be encountered in the construction of the tunnels as aforesaid at the time it entered into said contract with defendant; but defendant, so plaintiff is informed and believes and therefore alleges, had knowledge of facts and circumstances from which it knew or should or could have known or suspected at said time that the ground through which the tunnels would be driven was not in fact self-supporting either for ninety per cent of the length of the said tunnels, or any part thereof, but was in truth and in fact not self-supporting for the entire length of said tunnels. That defendant falsely and fraudulently failed and neglected to inform and acquaint plaintiff with such facts and circumstances. For said reasons plaintiff entered into said contract with defendant solely by reason of the fraud of defendant as hereinbefore stated, and by reason of such fraud plaintiff was relieved of any obligation further to perform said contract and was entitled to rescind same in accordance with its notification to defendant to that effect on June 13th, 1936.

For a fifth and further and separate defense to said cross-complaint, plaintiff alleges:

I.

Plaintiff here repeats and incorporates as a part of this defense the allegations of paragraphs I to

VI, inclusive, of its second defense hereinabove in this answer set forth.

II.

By reason of the difference in ground conditions [64] encountered in the construction of said tunnels as aforesaid, and of the radically different character of the work required to be done by plaintiff under the contract as a result of such different ground condition, the doing, performance or construction of the work contracted for under the contract, plans and specifications became and was in fact impossible in that the facts and premises upon which said contract was based were of a character that the assumed work to be done and conditions to be found turned out not to exist, and thereby plaintiff was called upon to and did work of such different character to that contemplated that in truth and in fact no contract ever existed for the work done by plaintiff.

For a sixth, separate and further defense to said cross-complaint, plaintiff alleges:

I.

In said contract dated June 4th, 1934, between plaintiff and defendant, referred to in plaintiff's second defense, it is provided that the District Engineer of defendant would give plaintiff sufficient points and lines to enable plaintiff to construct said project in accordance with said contract and said plans and specifications and that defendant would

set sufficient points to line and grade for plaintiff to work to.

II.

Shortly after the commencement of construction operations under said contract, and repeatedly thereafter, plaintiff demanded of the then duly appointed and acting District Engineer of defendant and of defendant that said Engineer set the necessary points and determine the necessary [65] lines to enable plaintiff to construct said project as required by said contract. That notwithstanding said demands of plaintiff said Engineer failed and refused, and has at all times failed and refused, to set said points, or establish said lines, or any of them, and the refusal of said Engineer so to do was ratified and approved by defendant.

III.

Said refusal of said Engineer and defendant to establish said lines and set said points is, and was, a breach of said contract and for that reason, among others, plaintiff, on June 13th, 1936, delivered to defendant the notice of rescission of said contract referred to in plaintiff's second defense and rescinded said contract.

For a seventh, separate and further defense to said cross-complaint, plaintiff alleges:

I.

Said contract, dated June 4th, 1934, between plaintiff and defendant, referred to in plaintiff's second defense herein provides, in part, as follows:

"(b) Completion of Work.—The time of completion of the entire work specified herein shall be within a period of seven hundred and twenty (720) calendar days from the date of the execution of the contract by the Board of Directors.

"(c) Extension of Time.—The time during which the Contractor is delayed in said work by Acts of God, or by stormy or inclement weather, or by any reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the Contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof."

Said contract further purports to provide that plaintiff will pay to defendant as liquidated damages the amount of $500.00 per day for each and every working day that elapses between the [66] limiting date provided in the contract and the date of actual completion of the work.

Said contract further provides, in part, as follows:

"7. Payments for said work will be made only upon the certificate of the District Engineer for work actually performed. The District Engineer shall measure the work on or about the first day of each month and at the time of completion of the entire work, and shall render a certificate on or about the tenth day of each month and

at the completion of the entire work, stating the amount of work performed during the previous calendar month, and during the current month, at the time of completion. The Contractor shall then, at the times above specified, be entitled to receive a payment from the District in an amount to be determined as follows: Until the total value of the work done since commencement of performance of the contract exceeds Four Hundred Thousand Dollars ($400,000.00) the payment will be seventy-five per cent (75%) of the amount specified in the District Engineer's certificate; thereafter and until the total value of the work done since the commencement of performance of the contract equals One Million Dollars ($1,000,000.00), the constant sum of One Hundred Thousand Dollars ($100,000.00) will be retained by the District out of said total value; thereafter the progress payment will be ninety per cent (90%) of the amount specified in the Engineer's certificate, provided that no such estimate of payment shall be required to be made when, in the judgment of the District Engineer, the work is not proceeding in accordance with the provisions of the contract, or when, in his judgment, the total value of the work done since the last estimate amounts to less than Five Hundred Dollars ($500.00), except the certificate and payment required at the completion of the entire work."

II.

Said contract was executed by the Board of Directors of defendant on June 4th, 1934.

III.

On June 10th, 1935, plaintiff applied to defendant in writing for an extension of time within which to complete the work.

By letter dated July 12th, 1935, addressed to plaintiff, defendant denied said request for an extension of time.

By letter dated July 26th, 1935, from plaintiff to defendant, plaintiff protested said denial and reaffirmed its request for such extension.

By letter to defendant dated August 28th, 1935, plaintiff [67] again demanded an extension of time sufficient to enable it to complete the work.

By letter to defendant dated May 8th, 1936, plaintiff again made written application for an extension of time.

By letter from defendant to plaintiff dated May 14th, 1936, defendant denied said request for an extension of time.

In addition, plaintiff on many other occasions prior to May 24th, 1936, requested the District Engineer of defendant and requested defendant to grant to plaintiff an extension of time within which to complete construction of said project for such reasonable period as might be required and to which plaintiff was entitled, all of which said requests were denied.

IV.

Plaintiff was unavoidably delayed in the performance of said work for a period of at least 340 days by the following causes:

1. The work was delayed by stormy and inclement weather.

2. The work was delayed by a general strike in the San Francisco Bay area.

3. The work was delayed by the character of the ground encountered which was totally different from that represented by the contract and geological report.

4. The work was delayed because it was physically impossible to construct said tunnels in the ground encountered in the manner contemplated by the contract and a much slower and more expensive method of construction was necessary.

5. The work was delayed by the matters and things particularly set forth and alleged in paragraphs I to V, inclusive, of plaintiff's second defense hereinabove in this answer set forth and plaintiff refers to and incorporates said paragraphs of said second defense as a part [68] of this defense.

6. The work was delayed because of the inadequate and unsafe design of the tunnel.

7. The work was delayed by additional work required to be done which was not included in, or contemplated by, the contract, plans and specifications.

8. The work was delayed by slides and by the tunnels caving in, the necessity of reexcavating

and retimbering the caved in portions, the necessity of resetting timbers and moving them back where pressure of the ground had forced them out of alignment and by changes in the design for lining a part of the tunnels.

9. The work was delayed by conditions which arose, due to the nature of the ground, which endangered the lives of workmen.

10. The work was delayed by orders of the Industrial Accident Commission of California stopping and suspending all work.

11. The work was delayed through failure of defendant and the District Engineer of defendant to perform their obligations under the contract and in particular in failing to furnish to plaintiff lines and grades to which to work.

12. The work was delayed by orders of said Engineer stopping and suspending work.

13. The work was delayed by other causes not the fault of plaintiff and over which it had no control.

None of said causes of delay were due to any fault of plaintiff and over none of them did it have any control.

Said Engineer and defendant knew the condition of the [69] ground which had been encountered and knew of the existence of the causes for the delays.

V.

When plaintiff filed with defendant said requests for said extensions of time, neither said District

Engineer of defendant nor defendant granted, or have ever granted, to plaintiff a hearing thereon, or given to plaintiff any opportunity properly or at all to present same, but have arbitrarily, capriciously and fraudulently, knowing that plaintiff was entitled to extensions of time, denied the same.

Plaintiff is informed and believes and therefore alleges that said Engineer has failed to consider whether plaintiff was entitled to an extension of time and has failed to exercise his judgment as to whether the work was unavoidably delayed and has failed to perform his duties and obligations under said contract and that if he did act in any way on said requests for said extensions of time, such action was arbitrary, capricious and fraudulent and not based on the facts or his knowledge of the conditions which caused the delays.

Plaintiff is further informed and believes and therefore alleges that said District Engineer did not act on said requests of plaintiff for said extensions of time at all, but that they were denied by defendant without reference to the opinion or judgment of said Engineer.

VI.

Said District Engineer on or about the 1st day of June, 1936, measured the work which plaintiff had done under its said contract during the month of May, 1936, and on the 10th day of June, 1936, delivered an estimate to this plaintiff stating the amount of work performed by plaintiff during the month of May, 1936, and which said estimate stated

that plaintiff was entitled to be paid by defendant for said work the amount of $152,086.98. [70]

The estimates theretofore made by defendant stated that the total value of the work at said time done and performed by plaintiff in and about the performance of said project since the commencement of the performance of the contract by plaintiff exceeded the sum of $2,000,000.00.

Defendant also, at the time of the delivery by it to plaintiff of said above referred to estimate, delivered to this plaintiff its check, for the work done by said plaintiff during the month of May, 1936, in the sum of $148,586.98, and no more, and defendant has not paid or offered to pay to plaintiff any other or further amount or sum than that specified in said check for or on account of said progress payment so due and payable on the 10th day of June, 1936.

Defendant withheld from plaintiff a penalty of $500.00 per day for all days after May 24th, 1936, including non-working days, in making tender to plaintiff of the money due it under the contract for work done by plaintiff during said month of May, the total of such penalty withheld being $3,500.00, including $500.00 for a legal holiday and Sunday, a non-working day; and plaintiff is informed and believes and therefore alleges the fact to be that defendant intended to and would have withheld similarly $500.00 per day from any and all payments which might thereafter become due to plaintiff until the completion of the performance by plaintiff of the work of construction of said project; and that

the total amount which would have been so withheld by defendant from progress payments due and to become due to plaintiff would have been the sum of not less than $120,000.00.

By reason of the matters and things hereinbefore in this paragraph referred to and by reason of its failure to make and pay to plaintiff the full amount of said progress payment in the sum of $152,086.98 then due and payable, defendant breached its said contract with plaintiff in a substantial and material respect. [71]

For said reasons the consideration for plaintiff's obligation under said contract then and there failed in part, in the failure and refusal of said defendant, as aforesaid, to pay and in not paying to this plaintiff the amount and sum of money estimated by said defendant to be due and payable to this plaintiff for work done by it under said contract for and during the month of May, 1936, and according to the estimate of said District Engineer, as provided in said contract.

Further, the consideration for said contract then and there failed in a material respect in the failure and refusal of said defendant to pay to plaintiff the amount and sum of money estimated by said defendant to be due and payable to this plaintiff for work and labor done and performed by it under said contract for the month of May, 1936, under the terms of said estimate of said District Engineer, and in failing and refusing to grant to this plaintiff any extension of time whatsoever, as hereinbefore stated,

and in deducting the sum of $3,500.00 as a penalty under said contract for failure to complete the same within said contract period.

VII.

For the reason, among others, that defendant failed and refused to grant to plaintiff the extension of time to which it was entitled and failed and refused to pay to plaintiff the progress payments due and owing to it under said contract, plaintiff on June 13th, 1936, rescinded said contract and delivered to defendant the notice of rescission, a copy of which is set forth in paragraph III of defendant's second, separate and further defense to the first count of the complaint herein.

Upon said delivery of said notice of rescission plaintiff ceased all work on said project and has not since performed any work thereon and said contract was thereupon rescinded. [72]

For an eighth and further and separate defense to said cross-complaint, plaintiff alleges:

I.

Plaintiff here repeats and incorporates herein as a part of this defense the allegations of paragraphs I to V, inclusive, of its second defense hereinabove in this answer set forth.

II.

Plaintiff was ignorant of ground conditions encountered in the construction of the tunnels at the time it entered into said contract with defendant

and plaintiff could not have determined or ascertained the true condition of the ground to be encountered prior to the submission of its said bid to defendant or prior to the execution of said contract, but was forced to and did in fact rely upon the representations obtained from the specifications and geological report therein referred to and plaintiff was misled thereby and was therefore mistaken as to the true condition of the ground; but defendant, so plaintiff is informed and believes and therefore alleges, had knowledge of facts and circumstances from which it knew or should or could have known or suspected at said time that the ground through which the tunnels would be driven was not in fact self-supporting either for ninety per cent of the length of the said tunnels, or any part thereof, but was in truth and in fact not self-supporting for the entire length of said tunnels. That defendant falsely and fraudulently failed and neglected to inform and acquaint plaintiff with such facts and circumstances. For said reasons plaintiff entered into said contract with defendant solely by reason of the mistaken belief of plaintiff as to the said ground conditions and by reason of the inability of plaintiff to ascertain the true ground conditions and by reason of the fraud of defendant as hereinbefore stated and for said reasons plaintiff was relieved of any obligation further to perform said contract and was entitled to rescind and did rescind same in accord-
[73] ance with its notification to defendant to that effect on June 13th, 1936, a copy of which is set

forth in paragraph III of defendant's second, separate and further defense to the first count of the complaint herein.

Wherefore, plaintiff and cross-defendant prays that defendant and cross-complainant take nothing by its cross-complaint and that plaintiff have judgment in accordance with the prayer of its complaint on file herein.

THELEN & MARRIN,
EUGENE E. TREFETHEN,
DeLANCEY C. SMITH,
J. PAUL ST. SURE,
Attorneys for plaintiff and cross-defendant.

Receipt of a copy of the within Answer to Cross-Complaint this ..... day of February, 1937, is hereby admitted.

ARCHIBALD B. TINNING,
T. P. WITTSCHEN,
Attorneys for defendant and cross-complainant. [74]

State of California,
County of Alameda—ss.

Henry J. Kaiser, being first duly sworn, deposes and says:

That the plaintiff and cross-defendant named in the foregoing Answer to Cross-Complaint is a corporation; that affiant is an officer, to-wit, the presi-

dent of said corporation and as such is authorized to and does make this verification for and on behalf of said corporation; that affiant has read said Answer to Cross-Complaint and knows the contents thereof and that the same is true of his own knowledge, except as to matters which are therein stated on information and belief and as to those matters he believes it to be true.

HENRY J. KAISER.

Subscribed and sworn to before me this 10th day of February, 1937.

[Notarial Seal] PAUL E. ROGERS,
Notary Public
in and for the County of Alameda,
State of California.

[Endorsed]: Filed Feb. 10, 1937. [75]

[Title of District Court and Cause.]

ANSWER TO CROSS-COMPLAINT

[76]

Come now cross-defendants, Hartford Accident and Indemnity Company, Fidelity and Deposit Company of Maryland, The Aetna Casualty and Surety Company, Indemnity Insurance Company of North America, American Surety Company of New York, Fireman's Fund Indemnity Company, Maryland Casualty Company, United States Fidelity and Guaranty Company, The Fidelity and Casualty Company of New York, Glens Falls Indemnity

Company, Standard Surety and Casualty Company of New York, Standard Accident Insurance Company, Pacific Indemnity Company, Massachusetts Bonding and Insurance Company, Continental Casualty Company, and New Amsterdam Casualty Company, corporations, and answering the cross-complaint of defendant and cross-complainant, Joint Highway District No. 13 of the State of California, a public corporation, on file herein, said cross-defendants admit, deny and allege as follows:

I.

Answering paragraph IV of said cross-complaint, said cross-defendants deny generally and specifically, all and singular the allegations in said paragraph contained except that said cross-defendants admit that a contract in writing was entered into between plaintiff and defendant herein on the 4th day of June, 1934.

II.

Answering paragraph VI of said cross-complaint, said cross-defendants deny generally and specifically, each and all the allegations thereof beginning with the words "upon which date", line 28, page 31, to and including the words "or any part thereof", line 31, page 31; and in this behalf cross-defendants are informed and believe and therefore allege that on June 13, 1936, plaintiff duly rescinded said contract of June 4, 1934, for good and sufficient reasons and in accordance with law, and that since said date plaintiff has done no work under said contract. [77]

III.

Answering paragraph VII of said cross-complaint, said cross-defendants deny generally and specifically, each and all the allegations in said paragraph contained, except that said cross-defendants admit that they and each of them received from cross-complainant a copy of a notice in the form stated in said paragraph.

IV.

Answering paragraph VIII of said cross-complaint, said cross-defendants admit that they have not and none of them has done any work under said contract and that plaintiff has done no work under said contract since rescinding said contract on June 13, 1936. and deny generally and specifically each and every other allegation in said paragraph contained.

V.

Answering paragraph IX of said cross-complaint, said cross-defendants allege that they have no information or belief upon the subject sufficient to enable them, or any of them, to answer the allegations of said paragraph, and therefore and placing their denial upon that ground deny each and every allegation in said paragraph contained, except that said cross-defendants deny that plaintiff abandoned said contract at any time.

VI.

Answering paragraph X of said cross-complaint, said cross-defendants allege that they have no in-

formation or belief upon the subject sufficient to enable them, or any of them, to answer the allegations of said paragraph, and therefore and placing their denial upon that ground deny each and every allegation in said paragraph contained. [78]

VII.

Answering paragraph XI of said cross-complaint, said cross-defendants allege that they have no information or belief upon the subject sufficient to enable them, or any of them, to answer the allegations of said paragraph, and therefore and placing their denial upon that ground deny each and every allegation in said paragraph contained.

VIII.

Answering paragraph XII of said cross-complaint, said cross-defendants allege that said contract between plaintiff and cross-defendant and defendant and cross-complainant provides as follows:

"Section 4. Time

"(a) Commencement of Work.—The Contractor shall commence work within ten (10) days after the execution of the contract for the work by the Board of Directors and shall continue without interruption unless otherwise directed by the District. At least three (3) days before starting, the Contractor shall notify the District Engineer in writing of the date that work is to commence.

"(b) Completion of Work.—The time of completion of the entire work specified herein shall

be within a period of seven hundred and twenty (720) calendar days from the date of the execution of the contract by the Board of Directors.

"(c) Extension of Time.—The time during which the Contractor is delayed in said work by Acts of God, or by stormy or inclement weather, or by any reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the Contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof.

"(d) Damages for Delay. — The parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the contract or within such extensions of the contract time as may be allowed as herein provided, it is distinctly understood and agreed that the Contractor shall pay the District [79] as agreed and liquidated damages and not as a penalty five hundred dollars ($500.00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work, said sum being specifically agreed upon as a measure of damage to the District by reason of delay in the completion of the work; it being expressly

stipulated and agreed that it would be impracticable to estimate and ascertain the actual damages sustained by the District under such circumstances; and the Contractor agrees and consents that the amount of such liquidated damages so fixed shall be deducted and retained by the District from any money then due, or thereafter to become due, the Contractor."

and cross-defendants deny each and every allegation in said paragraph inconsistent with the above quoted provisions of said contract.

IX.

Answering paragraph XIII of said cross-complaint, said cross-defendants allege that they have no information or belief upon the subject sufficient to enable them, or any of them, to answer the allegations of said paragraph, and therefore and placing their denial upon that ground deny each and every allegation in said paragraph contained, except that said cross-defendants deny that plaintiff abandoned said contract and/or that there was any delay in the construction of said project caused by the alleged or any default of plaintiff.

X.

Said cross-defendants deny generally and specifically, all and singular, each and every allegation contained in paragraph XIV of said cross-complaint; and deny that defendant and cross-complainant has suffered and/or sustained damages or any

damage in the aggregate amount of $341,557.84, or in any sum or amount or at all.

XI.

Further answering said cross-complaint, said cross- [80] defendants allege that the contract between plaintiff and defendant provided that upon discontinuance of the contract by plaintiff before completion defendant and cross-complainant should, in the manner provided in said contract, proceed with the completion thereof and that in case the expense of completion

> "is less than the sum which would have been payable under this contract, if the same had been completed by the said second party (plaintiff), the said second party shall be entitled to receive the difference, and in case such expense shall exceed the last said amount, then the said second party or its bondsmen shall pay the amount of such excess to the first party on notice from the said first party (defendant and cross-complainant) of the excess so due"

and cross-defendants allege that at the time of the filing of said cross-complaint the expense of completion of said contract as in said contract provided had not been determined; that at the time of the filing of said cross-complaint, cross-defendant did not have a cause of action against cross-defendants upon the alleged bond for the damages alleged, or any thereof, and that said cross-complaint at the time of filing was and is premature.

XII.

Further answering said cross-complaint and as a separate defense thereto, said cross-defendants allege that the contract between plaintiff and defendant and cross-complainant provided in paragraph 5 thereof that after abandonment or discontinuance in the performance thereof by plaintiff or after notice by defendant and cross-complainant to plaintiff to discontinue, defendant and cross-complainant

> "shall thereupon have the power to place such and so many persons, and to obtain by contract, purchase or hire, such animals, carts, wagons, implements, tools, material or materials, by contract or otherwise, as said first party may deem advisable, to work at and be used to complete the work herein described, or such part thereof as the agent authorized to superintend the same may deem [81] necessary, and to use such material as they may find upon the line of said work and to charge the expense of such labor and material, animals, carts, wagons, implements and tools to the second party, and the expense so charged shall be deducted and paid by the first party out of such moneys as may be either due or may at any time thereafter become due to the said second party under and by virtue of this contract or any part thereof."

that defendant and cross-complainant did not proceed with the completion of said contract after the alleged abandonment of the work thereunder by plaintiff in the manner provided in said contract,

but proceeded with the completion thereof in a manner contrary to and in violation of the terms, conditions and provisions of said contract; and that by reason of said breach of said contract by defendant and cross-complainant, said answering cross-defendants are and each of them is relieved of any and all liability to defendant and cross-complainant under the alleged bond for and on account of the items of damage and each and all thereof alleged in said cross-complaint.

XIII.

Further answering said cross-complaint, and as a separate defense thereto, said answering cross-defendants are informed and believe and therefore allege:

1. That heretofore and on or about the 4th day of May, 1934, defendant advertised for bids to be made to it for the construction of the project described in the answer and cross-complaint, and invited bidders to submit bids therefor based upon the notice to bidders, plans, specifications and geological report furnished to bidders or made available to bidders in connection with any bid made; and that pursuant to said notice to bidders and based upon the representations to bidders contained in the plans and specifications and geological report, plaintiff submitted a bid for the doing of the work described [82] in the notice to bidders aforesaid.

Thereafter the bid of plaintiff was duly accepted and a contract in writing entered into between plain-

tiff and defendant pursuant to the bid made by plaintiff, to which contract reference is hereby made for a full statement of the details thereof, and to the documents referred to therein for a full statement of the details of same, with the same force and effect as if same were set forth in this answer, it being impracticable to fully set forth true copies of said contract and all documents referred to in the notice to bidders, plans and specifications as a part of this answer, and same being readily available in the records of defendant, which is a public corporation.

Plaintiff was induced to bid, and did bid solely upon the representations contained in the plans, specifications and geological report to which the attention of bidders was invited; and plaintiff relied upon all the representations therein contained in making its bid and in entering into a contract with the defendant pursuant to such bid, and would not have made said bid or entered into such contract, except for the representations contained in the plans, specifications and geological report.

2. That in and by the plans and specifications and the geological report it was represented by defendant to plaintiff that the tunnels described therein would be driven through ground which was self-supporting in character for ninety per cent or more of the total length of said tunnels, and which could be constructed and would be required to be constructed with the use only of temporary timber supports for the excavation of said tunnels which would be removed before the installation therein of the

concrete lining or permanent structure thereof provided to be built therein under the plans and specifications. [83]

That in truth and in fact said representations were false in that the entire length of the tunnels to be constructed was in ground which was not self-supporting, and which required permanent timbering or other support until and after the installation therein of the permanent concrete lining or structure thereof, and required all of the support placed therein prior to permanent lining to remain without removal from said tunnels.

3. After entering into said contract with defendant, as aforesaid, plaintiff commenced work thereunder, and undertook the construction of said tunnels under and in accordance with the plans and specifications and in the belief that the representations contained in the plans and specifications and the geological report were true and correct. As the construction of said tunnels progressed, plaintiff found that the ground through which same were being driven was not self-supporting, and that all temporary support for the excavation for same was required of necessity to remain permanently.

4. By reason of the character of ground encountered in the excavation and construction of said tunnels as aforesaid, plaintiff was necessarily required to and did expend large sums of money for labor to excavate and construct said tunnels in excess of that which would have been spent by plaintiff in the event the construction of same could have been per-

formed in accordance with the representations made as aforesaid, and also was compelled to and did expend large sums for materials and for the proper prosecution of the work in excess of what would otherwise have been necessary.

5. It was never within the contemplation of said contract or of the parties to it that said tunnels should be constructed in said manner or through ground of the character and type [84] actually encountered and plaintiff was not, therefore, obligated or required by said contract to so construct said tunnels and is entitled to recover from defendant the reasonable value of the work done by it in constructing said tunnels and a reasonable profit.

6. That for the reason, among others, that the condition of said ground had been misrepresented by defendant to plaintiff, as hereinbefore stated, and that the work of constructing said tunnels was so radically different from that required by the contract, plaintiff, on June 13th, 1936, rescinded said contract and delivered to defendant the notice of rescission, a copy of which is set forth in paragraph III of defendant's second, separate and further defense to the first count of the complaint herein.

Upon said delivery of said notice of rescission plaintiff ceased all work on said project and has not since performed any work thereon and said contract thereupon was rescinded.

XIV.

Further answering said cross-complaint and as a separate defense thereto, said answering cross-

defendants are informed and believe and therefore allege:

1. Plaintiff here repeats and incorporates as a part of this defense the allegations of paragraphs I to VI, inclusive, of its second defense hereinabove in this answer set forth.

2. The ground condition aforesaid was understood by both plaintiff and defendant and contemplated by both of them to be in accordance with the plans and specifications and the representations contained therein and in the geological report referred to therein; and said contract was entered into in the contemplation by both parties that self-supporting ground would be encountered [85] in the excavation and construction of the tunnels for ninety per cent, or more, of the length thereof, all as hereinbefore alleged; and each party to said contract was mistaken as to the true facts; and by reason of such mistake plaintiff was relieved of any obligation further to perform said contract, and was entitled to rescind and did rescind same in accordance with its notification to defendant to that effect on June 13th, 1936.

XV.

Further answering said cross-complaint and as a separate defense thereto, said answering cross-defendants are informed and believe and therefore allege:

1. Plaintiff here repeats and incorporates as a part of this defense the allegations of paragraphs I to VI, inclusive, of its second defense hereinabove in this answer set forth.

2. That plaintiff was ignorant of, and mistaken as to, the ground condition to be encountered in the construction of the tunnels as aforesaid at the time it entered into said contract with defendant; but defendant, so plaintiff is informed and believes and therefore alleges, had knowledge of facts and circumstances from which it knew or should or could have known or suspected at said time that the ground through which the tunnels would be driven was not in fact self-supporting either for ninety per cent of the length of the said tunnels, or any part thereof, but was in truth and in fact not self-supporting for the entire length of said tunnels. That defendant falsely and fraudulently failed and neglected to inform and acquaint plaintiff with such facts and circumstances. For said reasons plaintiff entered into said contract with defendant solely by reason of the fraud of defendant as hereinbefore stated, and by reason of such fraud plaintiff was relieved of any obligation further to perform said [86] contract and was entitled to rescind same in accordance with its notification to defendant to that effect on June 13th, 1936.

XVI.

Further answering said cross-complaint and as a separate defense thereto, said answering cross-defendants are informed and believe and therefore allege:

1. Plaintiff here repeats and incorporates as a part of this defense the allegations of paragraphs I to VI, inclusive, of its second defense hereinabove in this answer set forth.

2. By reason of the difference in ground conditions encountered in the construction of said tunnels as aforesaid, and of the radically different character of the work required to be done by plaintiff under the contract as a result of such different ground condition, the doing, performance or construction of the work contracted for under the contract, plans and specifications became and was in fact impossible in that the facts and premises upon which said contract was based were of a character that the assumed work to be done and conditions to be found turned out not to exist, and thereby plaintiff was called upon to and did work of such different character to that contemplated that in truth and in fact no contract ever existed for the work done by plaintiff.

XVII.

Further answering said cross-complaint and as a separate defense thereto, said answering cross-defendants are informed and believe and therefore allege:

1. In said contract dated June 4th, 1934, between plaintiff and defendant, referred to in plaintiff's second defense, it is provided that the District Engineer of defendant would give plaintiff sufficient points and lines to enable plaintiff to construct said project in accordance with said contract and said [87] plans and specifications and that defendant would set sufficient points to line and grade for plaintiff to work to.

2. Shortly after the commencement of construction operations under said contract, and repeatedly

thereafter, plaintiff demanded of the then duly appointed and acting District Engineer of defendant and of defendant that said Engineer set the necessary points and determine the necessary lines to enable plaintiff to construct said project as required by said contract. That notwithstanding said demands of plaintiff said Engineer failed and refused, and has at all times failed and refused, to set said points, or establish said lines, or any of them, and the refusal of said Engineer so to do was ratified and approved by defendant.

3. Said refusal of said Engineer and defendant to establish said lines and set said points is, and was, a breach of said contract and for that reason, among others, plaintiff, on June 13th, 1936, delivered to defendant the notice of rescission of said contract referred to in plaintiff's second defense and rescinded said contract.

XVIII.

Further answering said cross-complaint and as a separate defense thereto, said answering cross-defendants are informed and believe and therefore allege:

1. Said contract, dated June 4th, 1934, between plaintiff and defendant, referred to in plaintiff's second defense herein provides, in part, as follows:

> "(b) Completion of Work.—The time of completion of the entire work specified herein shall be within a period of seven hundred and twenty (720) calendar days from the date of the

execution of the contract by the Board of Directors.

"(c) Extension of Time.—The time during which the Contractor is delayed in said work by Acts of God, or by stormy or inclement weather, or by any [88] reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the Contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof."

Said contract further purports to provide that plaintiff will pay to defendant as liquidated damages the amount of $500.00 per day for each and every working day that elapses between the limiting date provided in the contract and the date of actual completion of the work.

Said contract further provides, in part, as follows:

"7. Payments for said work will be made only upon the certificate of the District Engineer for work actually performed. The District Engineer shall measure the work on or about the first day of each month and at the time of completion of the entire work, and shall render a certificate on or about the tenth day of each month and at the completion of the entire work, stating the amount of work performed during

the previous calendar month, and during the current month, at the time of completion. The Contractor shall then, at the times above specified, be entitled to receive a payment from the District in an amount to be determined as follows: Until the total value of the work done since commencement of performance of the contract exceeds Four Hundred Thousand Dollars ($400,000.00) the payment will be seventy-five per cent (75%) of the amount specified in the District Engineer's certificate; thereafter and until the total value of the work done since the commencement of performance of the contract equals One Million Dollars ($1,000,000.00), the constant sum of One Hundred Thousand Dollars ($100,000.00), will be retained by the District out of said total value thereafter the progress payment will be ninety per cent (90%) of the amount specified in the Engineer's certificate, provided that no such estimate of payment shall be required to be made when, in the judgment of the District Engineer, the work is not proceeding in accordance with the provisions of the contract, or when, in his judgment, the total value of the work done since the last estimate amounts to less than Five Hundred Dollars ($500.00), except the certificate and payment required at the completion of the entire work."

2. Said contract was executed by the Board of Directors of defendant on June 4th, 1934. [89]

3. On June 10th, 1935, plaintiff applied to defendant in writing for an extension of time within which to complete the work.

By letter dated July 12th, 1935, addressed to plaintiff, defendant denied said request for an extension of time.

By letter dated July 26th, 1935, from plaintiff to defendant, plaintiff protested said denial and reaffirmed its request for such extension.

By letter to defendant dated August 28th, 1935, plaintiff again demanded an extension of time sufficient to enable it to complete the work.

By letter to defendant dated May 8th, 1936, plaintiff again made written application for an extension of time.

By letter from defendant to plaintiff dated May 14th, 1936, defendant denied said request for an extension of time.

In addition, plaintiff on many other occasions prior to May 24th, 1936, requested the District Engineer of defendant and requested defendant to grant to plaintiff an extension of time within which to complete construction of said project for such reasonable period as might be required and to which plaintiff was entitled, all of which said requests were denied.

4. Plaintiff was unavoidably delayed in the performance of said work for a period of at least 340 days by the following causes:

(1) The work was delayed by stormy and inclement weather.

(2) The work was delayed by a general strike in the San Francisco Bay area.

(3) The work was delayed by the character of the ground encountered which was totally different from that represented by the contract and geological report. [90]

(4) The work was delayed because it was physically impossible to construct said tunnels in the ground encountered in the manner contemplated by the contract and a much slower and more expensive method of construction was necessary.

(5) The work was delayed by the matters and things particularly set forth and alleged in paragraphs I to V, inclusive, of plaintiff's second defense hereinabove in this answer set forth and plaintiff refers to and incorporates said paragraphs of said second defense as a part of this defense.

(6) The work was delayed because of the inadequate and unsafe design of the tunnel.

(7) The work was delayed by additional work required to be done which was not included in, or contemplated by, the contract, plans and specifications.

(8) The work was delayed by slides and by the tunnels caving in, the necessity of reexcavating and retimbering the caved in portions, the necessity of resetting timbers and moving them back where pressure of the ground had forced them out of alignment and by changes in the design for lining a part of the tunnels.

(9) The work was delayed by conditions which arose, due to the nature of the ground, which endangered the lives of workmen.

(10) The work was delayed by orders of the Industrial Accident Commission of California stopping and suspending all work.

(11) The work was delayed through failure of defendant and the District Engineer of defendant to [91] perform their obligations under the contract and in particular in failing to furnish to plaintiff lines and grades to which to work.

(12) The work was delayed by orders of said Engineer stopping and suspending work.

(13) The work was delayed by other causes not the fault of plaintiff and over which it had no control.

None of said causes of delay were due to any fault of plaintiff and over none of them did it have any control.

Said Engineer and defendant knew the condition of the ground which had been encountered and know of the existence of the causes for the delays.

5. When plaintiff filed with defendant said requests for said extensions of time, neither said District Engineer of defendant nor defendant granted, or have ever granted, to plaintiff a hearing thereon, or given to plaintiff any opportunity properly or at all to present same, but have arbitrarily, capriciously and fraudulently, knowing that plaintiff was entitled to extensions of time, denied the same.

Plaintiff is informed and believes and therefore alleges that said Engineer has failed to consider

whether plaintiff was entitled to an extension of time and has failed to exercise his judgment as to whether the work was unavoidably delayed and has failed to perform his duties a d obligations under said contract and that if he did act in any way on said requests for said extensions of time, such action was arbitrary, capricious and fraudulent and not based on the facts or his knowledge of the conditions which caused the delays.

Plaintiff is further informed and believes and therefore alleges that said District Engineer did not act on said requests [92] of plaintiff for said extensions of time at all, but that they were denied by defendant without reference to the opinion or judgment of said Engineer.

6. Said District Engineer on or about the 1st day of June, 1936 measured the work which plaintiff had done under its said contract during the month of May, 1936, and on the 10th day of June, 1936 delivered an estimate to this plaintiff stating the amount of work performed by plaintiff during the month of May, 1936, and which said estimate stated that plaintiff was entitled to be paid by defendant for said work the amount of $152,086.98.

The estimates theretofore made by defendant stated that the total value of the work at said time done and performed by plaintiff in and about the performance of said project since the commencement of the performance of the contract by plaintiff exceeded the sum of $2,000,000.00.

Defendant also, at the time of the delivery by it to plaintiff of said above referred to estimate, de-

livered to this plaintiff its check, for the work done by said plaintiff during the month of May, 1936, in the sum of $148,586.98, and no more, and defendant has not paid or offered to pay to plaintiff any other or further amount or sum than that specified in said check for or on account of said progress payment so due and payable on the 10th day of June, 1936.

Defendant withheld from plaintiff a penalty of $500.00 per day for all days after May 24th, 1936, including non-working days, in making tender to plaintiff of the money due it under the contract for work done by plaintiff during said month of May, the total of such penalty withheld being $3,500.00, including $500.00 for a legal holiday and Sunday, a non-working day; and plaintiff is informed and believes and therefore alleges the fact to be that [93] defendant intended to and would have withheld similarly $500.00 per day from any and all payments which might thereafter become due to plaintiff until the completion of the performance by plaintiff of the work of construction of said project; and that the total amount which would have been so withheld by defendant from progress payments due and to become due to plaintiff would have been the sum of not less than $120,000.00.

By reason of the matters and things hereinbefore in this paragraph referred to and by reason of its failure to make and pay to plaintiff the full amount of said progress payment in the sum of $152,086.98 then due and payable, defendant breached its said

contract with plaintiff in a substantial and material respect.

For said reasons the consideration for plaintiff's obligation under said contract then and there failed in part, in the failure and refusal of said defendant, as aforesaid, to pay and in not paying to this plaintiff the amount and sum of money estimated by said defendant to be due and payable to this plaintiff for work done by it under said contract for and during the month of May, 1936, and according to the estimate of said District Engineer, as provided in said contract.

Further, the consideration for said contract then and there failed in a material respect in the failure and refusal of said defendant to pay to plaintiff the amount and sum of money estimated by said defendant to be due and payable to this plaintiff for work and labor done and performed by it under said contract for the month of May, 1936, under the terms of said estimate of said District Engineer, and in failing and refusing to grant to this plaintiff any extension of time whatsoever, as hereinbefore stated, and in deducting the sum of $3,500.00 as a penalty under [94] said contract for failure to complete the same within said contract period.

7. For the reason, among others, that defendant failed and refused to grant to plaintiff the extension of time to which it was entitled and failed and refused to pay to plaintiff the progress payments due and owing to it under said contract, plaintiff

on June 13th, 1936, rescinded said contract and delivered to defendant the notice of rescission, a copy of which is set forth in paragraph III of defendant's second, separate and further defense to the first count of the complaint herein.

Upon said delivery of said notice of rescission plaintiff ceased all work on said project and has not since performed any work thereon and said contract was thereupon rescinded.

XIX.

Further answering said cross-complaint and as a separate defense thereto, said answering cross-defendants are informed and believe and therefore allege:

1. Plaintiff here repeats and incorporates herein as a part of this defense the allegations of paragraphs I to V, inclusive, of its second defense hereinabove in this answer set forth.

2. Plaintiff was ignorant of ground conditions encountered in the construction of the tunnels at the time it entered into said contract with defendant and plaintiff could not have determined or ascertained the true condition of the ground to be encountered prior to the submission of its said bid to defendant or prior to the execution of said contract, but was forced to and did in fact rely upon the representations obtained from the specifications and geological report therein referred to and plaintiff was misled thereby and was therefore mistaken as to the true condition of the ground; but defendant, so plaintiff is informed and believes and there-

fore alleges, had knowledge of facts and cir- [95] cumstances from which it knew or should or could have known or suspected at said time that the ground through which the tunnels would be driven was not in fact self-supporting either for ninety per cent of the length of the said tunnels, or any part thereof, but was in truth and in fact not self-supporting for the entire length of said tunnels. That defendant falsely and fraudulently failed and neglected to inform and acquaint plaintiff with such facts and circumstances. For said reasons plaintiff entered into said contract with defendant solely by reason of the mistaken belief of plaintiff as to the said ground conditions and by reason of the fraud of defendant as hereinbefore stated and for said reasons plaintiff was relieved of any obligation further to perform said contract and was entitled to rescind and did rescind same in accordance with its notification to defendant to that effect on June 13th, 1936, a copy of which is set forth in paragraph III of defendant's second, separate and further defense to the first count of the complaint herein.

Wherefore, said cross-defendants pray that defendant and cross-complainant take nothing by its cross-complaint and that said cross-defendants be hence dismissed with their costs.

REDMAN, ALEXANDER &
BACON
Attorneys for said Cross-
Defendant. [96]

State of California
City and County of San Francisco—ss.

Joy Lichtenstein, being first duly sworn, deposes and says: That he is an officer of the Hartford Accident and Indemnity Company, a corporation, one of the cross-defendants in the above entitled action, to wit: Vice-President, and as such is authorized to make this verification; that he has read the foregoing answer to cross-complaint and knows the contents thereof and that the same is true of his own knowledge, except as to the matters therein stated upon information or belief, and as to such matters that he believes it to be true.

JOY LICHTENSTEIN

Subscribed and sworn to before me this 26 day of February, 1937.

[Seal] DOROTHY H. McLENNAN
Notary Public, in and for the City and County of San Francisco, State of California.

[Endorsed]: Filed Feb. 26, 1937. [97]

[Title of District Court and Cause.]

STIPULATION WAIVING JURY.

It Is Hereby Stipulated and Agreed by and between the parties hereto, represented by their respective attorneys herein, that a jury in the above-entitled action may be and the same is [98] hereby waived; and the Court is hereby requested to make

special findings of fact and conclusions of law upon all the issues raised by the pleadings herein.

Dated, February 24, 1938.

THELEN & MARRIN
EUGENE E. TREFETHEN
DE LANCEY C. SMITH
J. PAUL ST. SURE
Attorneys for Plaintiff
REDMAN, ALEXANDER & BACON
Attorneys for Cross-Defendants.
ARCHIBALD B. TINNING
T. P. WITTSCHEN
Attorneys for Defendant and Cross-Complainant.

[Endorsed]: Filed Feb. 24, 1938. [99]

[Title of District Court and Cause.]

AMENDMENT TO COMPLAINT.

Comes now plaintiff and by leave of Court first had and obtained files this amendment to the complaint on file herein.

Said complaint is amended by adding to the first cause of action set forth therein the following paragraph, to be numbered paragraph VI, to-wit:

VI.

At all times during the performance by plaintiff of such work and labor and the furnishing of said

materials to said defendant at its special instance and request plaintiff was a [100] duly licensed contractor under the laws of the State of California.

Said complaint is further amended by adding to the second cause of action set forth therein the following paragraph, to be numbered paragraph III, to-wit:

III.

Said work was done, labor performed and materials furnished to defendant at its special instance and request and at all times during the performance of all of said acts plaintiff was a duly licensed contractor under the laws of the State of California.

Dated: March 4th, 1938.

THELEN & MARRIN
EUGENE E. TREFETHEN
DeLANCEY C. SMITH
J. PAUL ST. SURE
Attorneys for plaintiff and cross - defendants, Six Companies of California. [101]

State of California,
City and County of San Francisco—ss:

Geo. T. Sloan, being first duly sworn, deposes and says:

That plaintiff named in the above and foregoing amendment to complaint is a corporation; that affiant is an officer, to-wit, Assistant Secretary of said

corporation and is authorized to, and does, make this verification for and on behalf of said corporation; that affiant has read the above and foregoing amendment to complaint and knows the contents thereof and that the same is true of his own knowledge except as to matters therein stated on information and belief and as to those matters he believes it to be true.

GEO. T. SLOAN

Subscribed and sworn to before me this 4th day of March, 1938.

[Notarial Seal] LULU P. LOVELAND
Notary Public in and for the City and County of San Francisco, State of California. [102]

Receipt of a copy of the foregoing amendment to complaint is hereby acknowledged this 5 day of March, 1938.

A. B. TINNING
T. P. WITTSCHEN
Attorneys for Defendant and Cross-Complainant.
REDMAN, ALEXANDER & BACON
Attorneys for Cross-Defendants other than Plaintiff.

[Endorsed]: Filed Mar. 14, 1938. [103]

[Title of District Court and Cause.]

AMENDMENT TO ANSWER OF PLAINTIFF TO CROSS-COMPLAINT.

Comes now plaintiff and cross-defendant Six Companies of California and by leave of Court first had and obtained files this amendment to its answer to the cross-complaint.

Paragraph II on page 2 of said answer is amended to read as follows:

II.

Answering the allegations contained in paragraph IV of the cross-complaint admits that a contract in writing was entered into between plaintiff and defendant which was dated June 4th, [104] 1934, but in that connection plaintiff is informed and believes and therefore alleges that said contract was not executed by the Board of Directors of defendant on June 4th, 1934, but was executed by said Board of Directors on June 14th, 1934. Plaintiff denies each and all of the remaining allegations in said paragraph contained, commencing with the word "wherein" on line 30 of page 30 of the cross-complaint, to and including the end of said paragraph on line 10 on page 31 of the cross-complaint.

Paragraph II of plaintiff's seventh defense to the cross-complaint, on page 14, is amended to read as follows:

II.

Said contract is dated June 4th, 1934, but plaintiff is informed and believes and therefore alleges

that said contract was executed by the Board of Directors of defendant on June 14th, 1934, and was not executed by said Board of Directors prior thereto.

Dated: March 4th, 1938.

THELEN & MARRIN
EUGENE E. TREFETHEN
DeLANCEY C. SMITH
J. PAUL ST. SURE
Attorneys for plaintiff and cross - defendant, Six Companies of California. [105]

State of California
City and County of San Francisco—ss.

Geo. T. Sloan, being first duly sworn deposes and says:

That plaintiff named in the above and foregoing amendment to answer of plaintiff to cross-complaint is a corporation; that affiant is an officer, to-wit, Assistant Secretary of said corporation and is authorized to, and does, make this verification for and on behalf of said corporation; that affiant has read the above and foregoing amendment to answer of plaintiff to cross-complaint and knows the contents thereof and that the same is true of his own knowledge except as to matters therein stated on information and belief and as to those matters he believes it to be true.

GEO. T. SLOAN

Subscribed and sworn to before me this 4th day of March, 1938.

[Notarial Seal] LULU P. LOVELAND
Notary Public in and for the City and County of San Francisco, State of California. [106]

Receipt of a copy of the foregoing amendment to answer of plaintiff to cross-complaint is hereby acknowledged this 5 day of March, 1938.

A. B. TINNING
T. P. WITTSCHEN
Attorneys for Defendant and Cross-Complainant.
REDMAN, ALEXANDER & BACON
Attorneys for Cross-Defendants other than Plaintiff.

[Endorsed]: Filed Mar. 14, 1938. [107]

[Title of District Court and Cause.]

AMENDMENT TO ANSWER OF CROSS-DEFENDANTS SURETY COMPANIES TO CROSS-COMPLAINT. [108]

Come now cross-defendants, Hartford Accident and Indemnity Company, Fidelity and Deposit Company of Maryland, The Aetna Casualty and Surety Company, Indemnity Insurance Company of North America, American Surety Company of New York, Fireman's Fund Indemnity Company, Maryland Casualty Company, United States Fi-

delity and Guaranty Company, The Fidelity and Casualty Company of New York, Glens Falls Indemnity Company, Standard Surety and Casualty Company of New York, Standard Accident Insurance Company, Pacific Indemnity Company, Massachusetts Bonding and Insurance Company, Continental Casualty Company, and New Amsterdam Casualty Company, corporations, and, by leave of Court first had and obtained, file this amendment to their answer to the cross-complaint herein.

Paragraph I on page 2 of said answer is amended to read as follows:

"I.

Answering paragraph IV of said cross-complaint, said cross-defendants deny generally and specifically, all and singular, the allegations in said paragraph contained except that said cross-defendants admit that a contract in writing was entered into between plaintiff and defendant herein which was dated June 4, 1934, but in that connection said cross-defendants are informed and believe and therefore allege that said contract was not executed by the Board of Directors of defendant on June 4, 1934 but was executed by said Board of Directors on June 14, 1934."

Paragraph XVIII, Sub-division 2, page 14 of said cross-defendants' answer to the cross complaint is amended to read as follows: [109]

"2. Said contract is dated June 4, 1934 but cross-defendants are informed and believe and

therefore allege that said contract was executed by the Board of Directors of defendant and cross-complainant on June 14, 1934 and was not executed by said Board of Directors prior to said last mentioned date."

Dated: March 4, 1938.

REDMAN, ALEXANDER & BACON
Attorneys for said Cross-defendants. [110]

State of California
City and County of San Francisco—ss.

A. C. Posey, being first duly sworn, deposes and says: That he is Assistant Manager of the Hartford Accident and Indemnity Company, a corporation, one of the cross-defendants in the above entitled action, and as such is authorized to make this verification; that he has read the foregoing amendment to answer to cross-complaint and knows the contents thereof and that the same is true of his own knowledge, except as to the matters therein stated upon information or belief, and as to such matters that he believes it to be true.

A. C. POSEY

Subscribed and sworn to before me this 5th day of March, 1938.

[Seal] ORAH M. NICHOLS
Notary Public in and for the City and County of San Francisco, State of California.

Receipt of a copy of the foregoing Amendment to Answer to cross-complaint is hereby acknowledged this.....day of March, 1938.

THELEN & MARRIN
Attorneys for Plaintiff.

[Endorsed]: Filed Mar. 14, 1938. [111]

At a Stated Term of the Southern Division of the United States District Court for the Northern District of California, held at the Court Room thereof, in the City and County of San Francisco, on Friday, the 27th day of May, in the year of our Lord one thousand nine hundred and thirty-eight.

Present: the Honorable Michael J. Roche,
District Judge.

[Title of District Court and Cause.]

The parties hereto being present as heretofore the further trial hereof was thereupon resumed. George T. Sloan was sworn and testified on behalf of the plaintiff and the plaintiff rested. Mr. Wittschen made a motion to strike out certain evidence on the grounds stated, and after hearing the attorneys, it is Ordered that said motion stand submitted. Charles Derleth, Jr., and Wallace B. Boggs were sworn and testified on behalf of the defendant and thereupon the defendant rested its case on the right of the plaintiff to rescind the contract involved herein. Mr. Wittschen made and filed a mo-

tion for Special Findings and for Judgment in favor of the defendant on the right of plaintiff to rescind the contract involved herein. Mr. Marrin made a motion for judgment in favor of the plaintiff on the grounds stated and made a motion for Special Findings of Fact and Conclusions of Law in favor of the plaintiff on the grounds stated. After hearing the attorneys, it is Ordered that the further trial of this cause be and the same is hereby continued to Tuesday, May 31st, 1938 at ten o'clock a. m. [112]

At a Stated Term of the Southern Division of the United States District Court for the Northern District of California, held at the Court Room thereof, in the City and County of San Francisco, on Tuesday, the 31st day of May, in the year of our Lord one thousand nine hundred and thirty-eight.

Present: the Honorable Michael J. Roche,
District Judge.

[Title of District Court and Cause.]

The parties hereto being present as heretofore, the further trial hereof was thereupon resumed. Mr. Marrin made and filed a motion to strike defendant's exhibits WWW and O-4 from the record on the grounds stated in the motion and Mr. Alexander joined in said motion on behalf of the cross-defendants Surety Companies, which said motion was ordered submitted. Mr. Marrin made and filed a

motion of Plaintiff for Special Findings of Fact and Conclusions of Law and for judgment in its favor, and thereupon Mr. Alexander joined in the motion. After hearing the attorneys for the respective parties, it is Ordered that the motion for judgment in favor of the defendant on the right of the plaintiff to rescind be and the same is hereby granted and that judgment be entered accordingly upon Special Findings of Fact and Conclusions of Law to be prepared by the defendant in accordance with Rule 42 of this Court. Thereupon Mr. Alexander made a motion for Special Findings of Fact and Conclusions of Law on all the issues involved herein. Wallace B. Boggs was recalled by the defendant. Mr. Alexander made a motion to dismiss the cross-complaint as to the cross-defendants Surety Companies on the grounds stated. Mr. Smith made a motion to dismiss the cross-complaint as to the cross-defendant Six Companies of California on the grounds stated. Ordered that defendant's motion to strike plaintiff's Exhibits 22 and 23 be granted and plaintiff and cross-defendants, Surety Companies allowed an exception. Ordered that the plaintiff's motion to strike defendants Exhibits WWW and O-4 from the record be denied and plaintiff and cross-defendants Surety Companies allowed an exception. After argument, it is Ordered that the motions to dismiss the cross complaint be and the same are hereby submitted. Ordered that the further trial hereof be and the same is hereby continued until 10 o'clock a. m. tomorrow. [113]

At a Stated Term of the Southern Division of the United States District Court for the Northern District of California, held at the Court Room thereof, in the City and County of San Francisco, on Wednesday, the 1st day of June, in the year of our Lord one thousand nine hundred and thirty-eight.

Present: the Honorable Michael J. Roche,
District Judge.

[Title of District Court and Cause.]

The parties hereto being present as heretofore the further trial of this cause was thereupon resumed. The motions to dismiss the cross-complaint having been heretofore submitted, it is, by the Court, Ordered that said motions be and the same are hereby denied and the cross-defendants be and they are hereby allowed an exception to the ruling of the Court. Wallace B. Boggs was recalled and further testified on behalf of the defendant on its cross-complaint. Mr. Tinning introduced in evidence and filed defendant's exhibits X-1 to X-115. Mr. Wittschen filed a Dismissal as to certain cross-defendants and made a motion to dismiss the cross-complaint as to certain cross-defendants, and after hearing had, it is Ordered that said motion be and the same is hereby granted and that the Cross-Complaint of the defendant and cross-complainant be and the same is hereby dismissed without prejudice as against cross-defendant Fireman's Fund Indemnity Company, a California Corporation and

Pacific Indemnity Company, a California corporation, only, and it is Ordered that an exception be noted to the ruling of the Court. Mr. Wittschen made a motion to amend the cross-complaint on the face thereof and after argument by the attorneys it is Ordered that said motion be and the same is hereby granted, and it is further ordered that said amendments be deemed to be denied by each of the cross-defendants. Ordered that the further trial hereof be continued until tomorrow at ten o'clock a. m. [114]

[Title of District Court and Cause.]

DISMISSAL OF ACTION AS TO CERTAIN CROSS-DEFENDANTS. [115]

Defendant and Cross-Complainant Joint Highway District No. 13 of the State of California, a public corporation, hereby dismisses without prejudice its cross-complaint as against cross-defendants Fireman's Fund Indemnity Company, a California corporation, and Pacific Indemnity Company, a California corporation, only.

Dated: June 1, 1938.

ARCHIBALD B. TINNING
T. P. WITTSCHEN
Attorneys for Defendant and Cross-Complainant.

[Endorsed]: Filed June 1, 1938. [116]

At a Stated Term of the Southern Division of the United States District Court for the Northern District of California, held at the Court Room thereof, in the City and County of San Francisco, on Thursday, the 2nd day of June, in the year of our Lord one thousand nine hundred and thirty-eight.

Present: the Honorable Michael J. Roche,
District Judge.

[Title of District Court and Cause.]

The parties hereto being present as heretofore the further trial hereof was thereupon resumed. Wallace B. Boggs was recalled and further testified on behalf of the defendant and cross-complaint. Mr. Tinning introduced in evidence and filed defendant's exhibit X-116. Joseph Barlow Lippincott and H. A. Van Norman were sworn and testified on behalf of the defendant and cross-complaint. Thereupon the defendant and cross-complainant rested and the evidence was closed. Mr. Wittschen on behalf of the defendant and cross-complainant made a motion for judgment in its favor and made a motion for special findings of fact and conclusions of law on its cross-complaint in its favor against the plaintiff and cross-defendant Six Companies of California and the several Surety Companies now before the Court. Mr. Smith on behalf of the plaintiff and cross-defendant Six Companies of California made a motion to strike out certain evidence and Mr. Alexander on behalf of the Surety Companies joined in said motion. Mr.

Marrin on behalf of the plaintiff and cross-defendant made and filed a motion for Special Findings of Fact and Conclusions of Law and for judgment in its favor on the counter-claims of the defendant; and made a motion on behalf of the plaintiff and cross-defendant Six Companies of California for Special Findings of Fact and Conclusions of Law and for Judgment in its favor on the cross-complaint of defendant and cross-complainant. Mr. Alexander on behalf of the cross-defendants Surety Companies made a motion for judgment in favor of said Surety Companies, on the grounds stated. After argument by Mr. Wittschen on behalf of the defendant and cross-complaint, it is Ordered that the further trial hereof be continued and the same is hereby continued until Tuesday, June 7, 1938, at ten o'clock a. m. [117]

[Title of District Court and Cause.]

STIPULATION CONSENTING TO AMENDMENT TO ANSWER AND CROSS-COMPLAINT

It Is Hereby Stipulated and agreed by and between the parties hereto, represented by their respective attorneys, that defendant and cross-complainant, Joint Highway District No. 13 of [118] the State of California, a public corporation, may amend its answer and cross-complaint in the following particulars:

1. That on page 22, line 11, paragraph IV, of its counter-claim said defendant and cross-complainant may insert the figures $591,325.47 in place and in lieu of the figures $579,180.46.

2. That on page 34, line 25, paragraph X, of its cross-complaint said defendant and cross-complainant may insert the figures $591,325.47 in place and in lieu of the figures $579,180.46.

That upon the filing of this stipulation the Clerk of the above-entitled Court may make said corrections upon the face of said answer and cross-complaint and that no amended pleading need be filed.

Dated: July 21, 1938.

THELEN & MARRIN
DeLANCEY C. SMITH
EUGENE E. TREFETHEN
J. PAUL ST. SURE
Attorneys for Plaintiff.
ARCHBALD B. TINNING
T. P. WITTSCHEN
Attorneys for Defendant and Cross-Complainant.
REDMAN, ALEXANDER & BACON
Attorneys for Cross-Defendants other than Plaintiff.

ORDER DIRECTING AMENDMENT TO ANSWER AND CROSS-COMPLAINT.

Upon the filing of the foregoing stipulation, It Is Hereby Ordered that the Clerk of this Court make the corrections [119] specified in the above and foregoing stipulation upon the face of the answer and cross-complaint of defendant Joint Highway District No. 13 of the State of California, and place his initials opposite said corrections in the margin of the page upon which the corrections are made in said answer and cross-complaint.

Dated: July 22, 1938.

MICHAEL J. ROCHE
District Judge.

[Endorsed]: Filed Jul. 21, 1938. [120]

At a Stated Term of the Southern Division of the United States District Court for the Northern District of California, held at the Court Room thereof, in the City and County of San Francisco, on Wednesday, the 8th day of August, in the year of our Lord one thousand nine hundred and thirty-eight.

Present: the Honorable Michael J. Roche,
District Judge.

[Title of District Court and Cause.]

This cause having been heretofore tried and submitted, being now fully considered and the Court having filed its written Opinion thereon, it is in ac-

cordance with said Opinion, Ordered that the defendant Joint Highway District No. 13, of the State of California is entitled to the interim expenditure of $69,001.85, plus the reasonable cost of completing the project of $98,066.31, plus liquidated damages for the period of 284 days of $142,000.00, or a total of $309,068.16; that each surety company cross-defendants which have continued to be a party to this action, are liable for the percentage which they assumed on the Six Companies' bond; that costs of this suit be paid by cross-defendants; and that judgment be entered herein accordingly upon findings of fact and conclusions of law to be prepared by the defendant and cross-complainant pursuant to Rule 42 of this Court. [131]

[Title of District Court and Cause.]

Thelen & Marrin, DeLancey C. Smith,
Eugene E. Trefethen, J. Paul St. Sure,
Attorneys for Plaintiff and Cross-Defendant.

Archibald B. Tinning, T. P. Wittschen,
Attorneys for Defendant and
Cross-Complainant.

Redman, Alexander & Bacon
Attorneys for Cross-Defendants other than
Plaintiff.

OPINION.

Roche, District Judge:

This is an action for damages for breach of contract. It is submitted to the court in the form of a

cross-complaint, brought by the Joint Highway District No. 13, a public corporation of the [121] state of California, hereafter called the District, against the Six Companies of California, a Nevada Corporation, licensed as a contractor in the State of California, and numerous foreign corporations, sureties on the Six Companies' bond. Hereafter the Six Companies will also be referred to as the Contractor.

On July 1, 1936, litigation was begun by the Six Companies, which sought to recover $3,259,659.04, the balance claimed to be due for work done and materials furnished to the District. An answer and cross-complaint were filed by the District, which denied any indebtedness and set forth its own claims.

The District's cross-complaint alleges that on June 4, 1934, the District, in accordance with its authority, entered into a contract with the Six Companies whereby the latter agreed to undertake a project for the construction of a highway and highway tunnels and to furnish a faithful performance bond to the District. The surety companies, which have been joined as cross-defendants, were made jointly and severally liable with the Contractor upon the bond.

The District further alleges as follows: On June 13, 1936, the Six Companies abandoned their work, which was then about 70% completed. The Six Companies claimed the right to rescind the contract on several grounds, which were set forth in the

notice delivered to the District upon the cessation of work by the Contractor. The District promptly notified the Contractor and the surety Companies that they must proceed with their work; that if the job were not resumed, the District would have the project completed and would hold the Contractor and the sureties liable for the cost. Neither the Six Companies nor the sureties resumed construction and The District, after calling for bids, let contracts to other corporations for the completion of the work at a cost of $1,751,611.74. [122]

The cross-complaint acknowledges that the District has retained $224,560.79, or 10% of the contract price for work done prior to May 1, 1936; that the District has in its possession an additional $265,891.82 for work performed by the Companies after May 1, 1936; that the District is holding $2,806.55 on behalf of the Companies for past work performed; that these three amounts total $493,259.16, from which sum must be deducted $10,000.00 retained by the District as liquidated damages, thus leaving a credit of $483,259.16. The District claims that the difference between the reasonable cost of completing the work and the contract price for the uncompleted work is $591,325.47. This sum, less the above mentioned $483,259.16 still retained for the Six Companies, leaves $108,066.31 as the reasonable cost of completing the work necessitated by the Six Companies' default.

The District alleges that it became necessary for it (a) to protect and maintain the work at a rea-

sonable cost of $47,944.33; (b) to measure the work at a reasonable cost of $5,134.22; (c) to readvertise for bids at a reasonable cost of $1,862.45; (d) to procure insurance at a reasonable cost of $14,060.85. These sums total $69,001.85. Furthermore, it is alleged that there was a delay of 433 days in the completion of the work directly attributable to the delay and abandonment on the part of the Six Companies. This was a reasonable period for the District to take to complete the project. It is extremely difficult to estimate all of the damages caused by the delay in the completion of the work. Liquidated damages of $500.00 per day for this delay are asked by the District in accordance with #4 (d) of the contract, which reads as follows:

> "(d) Damages for Delay.—The Parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the contract or within such extensions of the contract time as may be allowed as herein provided, it is distinctly understood and agreed that the contractor shall pay the District as agreed and liquidated damages and not as a penalty five hundred dollars ($500.00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual [123] completion of the work, said sum being specifically agreed upon as a measure of the damage, to the District by reason of delay in the completion of the work;

it being expressly stipulated and agreed that it would be impracticable to estimate and ascertain the actual damages sustained by the District under such circumstances, and the Contractor agrees and consents that the amount of such liquidated damages so fixed, shall be deducted and retained by the District from any money then due, or thereafter to become due, the Contractor."

The District asks for a judgment against the Companies in the sum of $383,568.16, based on the allegations of the reasonable cost of completing the work, less credits, plus interim expenditures, plus damages caused by delay.

The Contractor and the sureties, in their answer to the cross-complaint, allege that the District had breached the contract by failing to furnish lines and grades as required by the contract, by not granting the contractor an extension of time to complete the work, by deducting liquidated damages from a progress payment made to the Contractor by the District; and finally it is alleged that the District presented plans and specifications to the Contractor which were deceiving and misleading in that the Six Companies were led to believe that the ground to be encountered in driving the tunnels would be found to be self-supporting and require little timber re-inforcement during construction, but that actually the entire tunnels needed timber, thus causing the Contractor to do more excavation

than planned and furnish more concrete than anticipated.

After a hearing, the Court ruled against the Six Companies on the common counts, and concluded that the plaintiffs were guilty of a breach of contract. Thus it follows that the District is entitled to relief on its cross-complaint and the only remaining question concerns itself with the amount of damages which must be awarded to the District.[1] The problem may be stated as follows: When a builder breaches a contract by reason of an abandonment, and such a contract contains a liquidated damage clause, to what extent is the builder liable in damages? [124]

There is no dispute as to the accuracy of the various damage figures presented by the District. But the Companies, assuming a breach of contract as found by the court, deny that they are liable for liquidated damages or for the interim expenditures. The Companies assert that the provision for liquidated damages can have no application to a delay occurring after the contract has been abandoned. They further maintain that even if the provision for liquidated damages is applicable, it must be held to be unenforceable because it is a penalty.

In support of the contention that a provision for liquidated damages is inapplicable to a situation in

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1. The surety companies are jointly and severally liable under the Six Companies' bond. Certain technical defenses, which the sureties suggest might absolve them from liability, do not impress the Court.

which delay occurs because of abandonment, the Companies rely chiefly upon two California cases, namely Bacigalupi v. Phoenix Bldg. Construction Co. (1910) 14 Cal. App. 632 and Sinnott v. Schumacher (1919) 45 Cal. App. 46. These cases hold that a plaintiff may sue for actual damages when a defendant has breached his contract, notwithstanding a liquidated damage clause in the agreement. But this is not to say that a plaintiff, or cross-complainant, may not act upon the liquidated damage provision in a contract when he seeks damages for delay caused by an abandonment. That he may rely on such a clause is recognized in Southern Pacific Co. v. Globe Indemnity Co. (1927) 21 F2d 288, where a question much like the one in the principal case arose. There the court held that the aggrieved party may recover liquidated damages for delay, whether the contract is abandoned or not, the court saying:

> "It is urged that a liquidated damage clause does not apply when work under the contract is abandoned by the contractor * * * A close examination of the cases, however, does not in our opinion establish such a rule, and we can see no justification for it, at least when the contractor abandons after the time for completion has passed. In such a case some part of the liquidated damages has accrued before the repudiation. No intelligible reason has been suggested why the owner should lose his right to them because of subsequent repudiation.

"* * * In these cases (Bacigalupi v. Phoenix Co. and like decisions), the plaintiff made no claim to collect liquidated damages for delay, as well as the increased cost of completing the abandoned work. They are not, therefore, authorities for the alleged rule that he cannot do so * * *" [125]

The Court then ruled that the plaintiff was entitled to liquidated damages for the time the original contractor would have taken to complete the job, had he remained at work.

The cases which are mentioned and distinguished in this opinion, and a statement made by Williston (Vol. 3 #785), and based upon these same cases, are relied upon by the Six Companies. The Reasoning in the Southern Pacific decision—which is in accord with City of Reading v. U. S. Fidelity, etc. Co. (1937) 19 F. Supp. 350, and School District v. U. S. Fidelity and Guarantee Co (1915) 152 P. 668—is sound and applies in the case before the Court.

Adopting the rule that a liquidated damage provision in a contract must be enforced, whether or not delay in completion is caused by abandonment, the question then arises as to the length of the period for which such damages may be recovered. Obviously, the per diem arrangement does not run during the entire period of delay. This much the District itself recognizes, for it asks for damages for 433 days, although over 500 days elapsed between the time the project was supposed to have

been completed and the date the work was actually finished. The 433 days are made up of three periods: 264 days (reasonable time), for the actual finishing of the tunnels and highway by new contractors; 20 days of work for the Six Companies themselves after the contract time limit had expired; 149 days between the date of abandonment and the date work was resumed. How many of these days should be allowed in fixing the period for which liquidated damages are recoverable?

In McCormick on "Damages" at page 619 this statement is found: The delay provision applies "to this extent, that the owner may recover for the delay through the period that would have been consumed by the contractor if he had, instead of the owner, carried the work to completion." Under this rule, the [126] first two periods may properly be tabulated in ascertaining the time necessary to carry out the project if the Six Companies had themselves completed the work. But the third item—the lapse of time during which no work was done—may not be considered. It may be argued that it is unfair to disregard the gap between construction periods, for it is impossible to avoid such delay. This is true, but the Court believes that the rule as stated by McCormick is both practical and in accordance with the intent of the parties to the contract, even though it may work a hardship in certain cases. By refusing to award damages for the total period of delay, the temptation to procrastinate in employing new contractors is diminished.

And even when the employer acts in good faith and with as much speed as possible, as in the case at bar, there are many factors which may operate to prolong the period of inactivity indefinitely, such as the District's inability to get bids from new contractors. To allow per diem damages to accrue during such a period of suspension in operations would be neither fair nor in accordance with the intent of the parties. Furthermore, the liquidated damage clause in the contract before the court refers to "every *working day** which may elapse between the limiting date . . . and the date of actual completion"—and not simply to the total lapse of time between the start and the finish of the project. This contract language necessarily leads the court to follow the McCormick rule.[2] In the normal case, the delay provision applies to the original contractor; in our case, which is exceptional, it applies to the time the Six Companies *would have taken* had they completed the job themselves—and this time is measured by the period reasonably required by the new contractors to finish the project. The intent of

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2. In School District v. U. S. Fidelity and Guarantee Co. (1915) 152 P. 668 liquidated damages were allowed for the reasonable period of delay, including the period of inactivity. We do not believe that such an award was incorrect in view of a contract provision allowing damages for each day beyond a certain time until the work was completed, but we think that the contract and the facts in the principal case do not warrant the inclusion of the gap between abandonment and recommencement of work.

*Italics in this Opinion are by the Court.

the parties is to determine the harm caused by the late completion of the work; liquidated damages must be limited to such a period. [127]

There is no merit in the contention of the Six Companies that the liquidated damages provision is void. Section 1670 of the California Civil Code, while declaring fixed damage clauses invalid in many contracts, is followed by an exception which applies directly to the facts found in the principal case. The exception is contained in Section 1671 of the Cal. C. C. which reads: "The parties to a contract may agree therein upon an amount which shall be presumed to be the amount of damage sustained by a breach thereof, when, from the nature of the case, it would be impracticable or extremely difficult to fix the actual damages." Clearly the contract between the District and the Six Companies comes within this exception. The injury suffered by the District through delay in performance cannot be measured accurately. It is known that the cost of maintaining the District is $272.89 per day; but how can the harm caused by the lack of use of the highway and highway tunnels be determined? The interest on the bonds amounting to about $200.00 per day is not a yardstick for measuring such damages. Even if the maintenance cost and the interest are looked upon as a rough approximation of the injury suffered by the District, they do not take the case out of the exception; they merely indicate that the $500.00 liquidated damage provision in the contract comes close to measuring actual damages.

Furthermore, at the time the contract was drawn up, there was no accurate way of measuring the injury which might be suffered through delay in completing the project and thus preventing its use. Hanlon Dry Dock Co. v. McNear (1886) 70 Cal. 204, 210, and P. Factor Co. v. Adler (1891) 90 Cal. 110, both hold that if the damages are not measurable at the time the contract is entered into, then a liquidated damage provision is valid; nor is it nullified by the fact that it may be called a penalty. The Supreme Court has also sustained such liquidated damage provisions, even in the absence of proof of any actual damages (U. S. v. Bethlehem Steel Co. (1906) 205 U. S. [128] 105, Wise v. U. S. (1918) 249 U. S. 361, Robinson v. U. S. (1922) 261 U. S. 486 and other cases). The provision in the principal case is valid.[3]

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3. It is necessary that an adjustment be made in the allocation of damages in the principal case. The District has deducted $10,000.00 from the amount which is being held for the cross-defendants. This sum of $10,000.00 represents liquidated damages for the 20 days' delay by the Six Companies before their abandonment. Thus the District has figured an element of liquidated damages in its determination of the reasonable cost of completing the project. This we believe to be error, even though the District is entitled to the $10,000.00 quite apart from the Court's ruling on the general question of liquidated damages. The entire sum due the District as liquidated damages should be computed as a unit—264 days by new contractors plus 20 days by the Six Companies. There must be no confusion between liquidated damages and reasonable costs.

The assertion of the Six Companies that they are not liable for the interim expenditures does not warrant serious consideration. The costs of maintaining the work after abandonment, of calling for new bids and of making other necessary expenditures for keeping the project in order until work could be resumed, obviously spring directly from the breach of contract and are recoverable as damages. The reasonableness of the amounts has neither been refuted nor seriously challenged; the evidence sustains them.

Accordingly, the Court holds that the District is entitled to the interim expenditures of $69,001.85, plus the reasonable cost of completing the project of $98,066.31, plus liquidated damages for the period of 284 days of $142,000.00, or a total of $309,068.16; that each surety company cross-defendants which have continued to be a party to this action, are liable for the percentage which they assumed on the Six Companies' bond; that costs of this suit be paid by cross-defendants; that findings of fact and conclusions of law be prepared by the District pursuant to Rule 42 of this Court. [129]

Dated: August 8th, 1938.

MICHAEL J. ROCHE
United States District Judge.

[Endorsed]: Filed Aug. 8, 1938. [130]

[Title of District Court and Cause.]

REQUEST FOR SPECIAL FINDINGS OF FACT AND CONCLUSIONS OF LAW.

Defendant and Cross-Complainant, Joint Highway District No. 13 of the State of California, a public corporation, requests the Court to find the following facts and to enter the following conclusions of law all in accordance with findings of fact and conclusions of law hereto attached.

Dated: August 12th, 1938.

ARCHIBALD B. TINNING
T. P. WITTSCHEN
Attorneys for Defendant and Cross-Complainant. [132]

[Title of District Court and Cause.]

FINDINGS OF FACT AND CONCLUSIONS OF LAW. [133]

The above-entitled cause came on regularly for trial before the above-entitled court, Honorable Michael J. Roche Judge presiding, without a jury, a jury having been expressly waived by written stipulation of all the parties hereto heretofore filed in the above-entitled court and cause. Said trial began on the 12th day of April, 1938; plaintiff and cross-defendant Six Companies of California appearing by its counsel Messrs. Thelen & Marrin, DeLancey C. Smith, Eugene E. Trefethen and J.

Paul St. Sure; defendant and cross-complainant, Joint Highway District No. 13 of the State of California, appearing by its counsel Archibald B. Tinning, Esq. and T. P. Wittschen, Esq.; and the cross-defendant Surety Companies above named appearing by their counsel Messrs. Redman, Alexander & Bacon.

Upon motion of the defendant and cross-complainant, duly and regularly granted by the court, the cause of action stated in the cross-complaint of defendant and cross-complainant Joint Highway District No. 13 of the State of California was dismissed as to cross-defendants Fireman's Fund Indemnity Company, a California corporation, and Pacific Indemnity Company, a California corporation.

The court proceeded with the trial of said cause from day to day until concluded, and testimony and exhibits were introduced on behalf of the parties to said action, and at the conclusion of taking said testimony and offering of documents the case was duly argued and submitted; and now the court having fully considered the facts and being duly advised in the premises makes and renders its decision herein comprising Findings of Fact and Conclusions of Law as Follows:

FINDINGS OF FACT.

I.

Finds that plaintiff, Six Companies of California, was [134] at all the dates and times herein mentioned and still is a corporation duly incorpo-

rated, organized and doing business as such corporation under and by virtue of the authority of the laws of the State of Nevada, and is now and at all the times herein mentioned was and has been a citizen of the State of Nevada.

II.

Finds that defendant, Joint Highway District No. 13 of the State of California, is now and at all the dates and times herein mentioned was and has been a public corporation duly organized and existing under and by virtue of the authority of the laws of the State of California, and is now and at all the dates and times herein mentioned was and has been a citizen of the State of California.

III.

Finds that the proceeding herein is one of a civil nature and the parties were at all the dates and times herein mentioned and still are citizens of different states; that the sum involved herein, exclusive of costs and interest, is in excess of the sum of $3,000, the claim of said plaintiff in the prayer of its complaint being for the sum of $3,259,695.04.

IV.

Finds that the grounds upon which the jurisdiction of this court depends are as follows:

(a) The existence of diversity of citizenship between the parties plaintiff and defendant, and that the suit is one of a civil nature between citizens of different states; and

(b) The amount in controversy exceeds, exclusive of interest and costs, the sum of $3,000.

V.

Finds it is not a fact that within two years last past or ever or at all said defendant became indebted to plaintiff in [135] the sum of $5,280,742.15 or in any other sum at all for work done or labor performed or materials furnished by said plaintiff to defendant at the special instance or request of said defendant or otherwise, and the court expressly finds said defendant is not indebted to plaintiff in the said amount or in any sum at all and that there is no sum due or owing or unpaid from defendant to plaintiff on account of the reasonable value of any work done or labor performed or materials furnished by plaintiff for defendant or otherwise.

VI.

Finds that at all times during the performance by plaintiff of any work for defendant as herein alleged plaintiff was a duly licensed contractor under the laws of the State of California.

VII.

Finds that on the 4th day of June, 1934, a contract in writing was duly and regularly entered into between defendant and plaintiff, wherein and whereby plaintiff as contractor agreed with defendant as owner that the said plaintiff pursuant to the terms of said contract and for and on behalf of defendant would construct, erect and complete a cer-

tain project of said defendant, which project included a highway, highway tunnel and approaches with appurtenant structures, including ventilation buildings, ventilation equipment and accessories, and the construction of highway approaches with pavement, drainage structures, curbs, gutters and sidewalks where required, construction of grade separation structures, viaducts, retaining walls and incidental structures, and connections with existing streets, all as described in [136] said contract between the said parties, which project is located within the boundaries of said defendant District and partly within the City of Oakland, County of Alameda, State of California, and partly within the County of Contra Costa, State of California, all in accordance with the final surveys, plans, specifications and detailed drawings therefor, together with the amendments and supplements to said specifications dated January 9, 1934 and April 3, 1934, theretofore adopted by the Board of Directors of said Joint Highway District No. 13, and which contract, plans and specifications and amendments at all times herein mentioned had been on file in the office of said defendant District, and which said contract, plans and specifications and amendments have been duly admitted in evidence in this action.

VIII.

Finds that upon the letting of said contract plaintiff did commence the construction of said project and did continue the said work, receiving

each month from defendant the monthly progress payments provided for in said contract for work done during the preceding month, which payments so made by defendant to plaintiff and accepted and retained by plaintiff up to the 13th day of June, 1936, amounted to $2,021,047.11.

IX.

Finds that on the 13th day of June, 1936, and after plaintiff had been so engaged on said work for approximately a period of two years plaintiff quit and abandoned said work and refused to proceed further with the performance of said contract, and did deliver to defendant a notice of abandonment and attempted [137] rescission in the words and figures as follows:

"June 13, 1936

Joint Highway District No. 13
of The State of California,
1448 Webster Street,
Oakland, California.

Gentlemen:

You are hereby notified that the undersigned, Six Companies of California, has elected to and does hereby terminate and rescind the contract dated June 4, 1934, between the undersigned and your District for the construction, erection and completion of the project of said Joint Highway District No. 13 of the State of California, which includes a highway, highway tunnels, and approaches with the

appurtenant structures located partly in the City of Oakland, County of Alameda, State of California, and partly in the County of Contra Costa, State of California, commonly known as the Broadway Tunnel Project.

Said rescission is made upon the following grounds and each and all of them:

First: Through your fault the consideration for our obligations under said contract has failed in part in that you have failed and refused to pay us the amount estimated by you to be due us under the monthly estimate for work done during the month of May, 1936. Said failure consists in the deduction by you from the amount estimated by you to be due us for such work of the sum of $3,500 for claimed damages for failure to complete the work under said contract, said deduction being computed at the rate of $500 per day for each day in May 1936 following May 24th, and to and including the 31st day of May, and including such a deduction for a legal holiday, May 30, and a nonworking day, Sunday, May 31st. Said deduction was and is contrary to and in violation of the terms of the contract in that we were and are entitled as a matter of right and of law to an extension of time thereunder for performance of same to a date after May 31, 1936; and was and is further in violation of the provisions of the said contract in that any dam-

ages for delay in completion of the contract can only be asserted or claimed against the contractor for working days after the contract date for completion.

Second: That the consideration for said contract has failed in a material respect in that you have breached said contract by refusing to pay us the amount due us under your monthly estimate for work done during the month of May, 1936. Said failure consists in the deduction by you from the amount due us for such work of the sum of $3,500 for claimed damages for failure to complete the work under said contract within contract time, said deduction being computed at the rate of $500 per day for each day in May, 1936 following May 24th, and to and including the 31st day of May, and including such a deduction for a legal holiday, May 30th, and a non-working day, Sunday, May 31st. Said deduction was [138] and is contrary to and in violation of the terms of the contract in that we were and are entitled as a matter of right and of law to an extension of time thereunder for performance of same to a date after May 31, 1936; and was and is further in violation of the provisions of the said contract in that any damages for delay in completion of the contract can only be asserted or claimed against the contractor for working days after the contract date for completion.

Third: That in failing to pay said sum mentioned in numbered paragraphs First and Second above and by your refusal to grant said extension of time you have breached said contract, and ground for rescission has arisen in our favor.

Fourth: That your failure and refusal to grant us the extensions of time to which we are entitled as a matter of right and of law for completion of said contract after May 24, 1936, although we have repeatedly requested the grant of such extensions is a breach of the contract.

Fifth: Because the ground encountered in the excavation for the tunnels provided for in the contract has been and is entirely and radically different from the character of ground represented to the contractor as that which would be encountered, and which was contemplated and predicted by the contract, geological report, specifications, plans and any and all other documents forming a portion or part thereof.

Sixth: For your failure and refusal to furnish points, lines and grades for us to work to and other engineering work in the construction of the tunnels as is required to be done or furnished by you by the terms and provisions of the contract and specifications forming a part thereof.

lay and continue to delay the work you contracted to perform, and your attempted rescission and termination of the contract, and each and all of them, constitute wilfull breaches of the contract by you.

You are further advised that unless you as said contractor resume work on the project and perform the same in accordance with all of the terms thereof within three (3) days of the date of your receipt of this letter, that this District will consider your acts and conduct as aforesaid a final abandonment of the contract and the work to be [140] done thereunder, and the District will proceed to complete the same in accordance with the provisions of the contract, and that the District will hold you and your bondsmen liable for any and all costs thereof in excess of the contract price and any and all damages to this District by reason of your wilfull abandonment of the work in violation of the terms of your contract with this District dated June 4, 1934.

Yours very truly,
JOINT HIGHWAY DISTRICT
NO. 13 OF THE STATE OF
CALIFORNIA,
By L. V. EATON,
Assistant Secretary."

That the notice and letter in this paragraph referred to was received by the plaintiff on the day it bears date.

XI.

Finds that on the 13th day of June, 1936, plaintiff ceased all work under said contract and on said project, and on said date refused and ever since said date has refused and still continues to refuse to proceed further therewith, and that on said date said defendant wrongfully abandoned the said work and contract between plaintiff and defendant.

XII.

Finds:

(1) That at all times said contract between plaintiff and defendant provided that the work to be done under said contract by plaintiff for defendant should be completed within 720 calendar days from and after the execution of said contract, and it was stated in said contract that time was of the essence of said agreement and said contract between plaintiff and defendant so provided; that the said 720 days for completion of said contract expired on May 24, 1936.

(2) That it is provided in paragraph 3 of said contract that the whole of said work is to be done by plaintiff to the satisfaction and approval of defendant and in strict accordance with the plans and specifications entered into between the parties. [141]

(3) That it is further provided in paragraph 4 of said agreement that the plaintiff is skilled in the trade or calling necessary to perform the work agreed to be done under the agreement and that the defendant not being skilled in such matters

relied upon the skill of plaintiff to do and perform the work and labor necessary in the most skillful and durable manner.

(4) That the specifications for said work are expressly made a part of said contract.

(5) Section 2, subparagraph (b) of said specifications read as follows:

> "Estimates of Quantities.—Where estimates of quantities are given on the Proposal Form, or in 'Notice to Contractors,' or in any Contract executed hereunder, it is hereby declared and shall be understood that such quantities are approximate only, being given as a basis for comparison of bids. The District does not expressly or by implication agree or guarantee that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, or to omit portions of the work as may be deemed necessary or expedient by the District Engineer."

(6) Section 2, subparagraph (c) of said specifications, reads as follows:

> "Examination of Plans, Specifications and Site of Work.—The bidder is required to examine carefully the site of the work, the Proposal Form, and plans, specifications and contract forms for the work contemplated. The submission of a Proposal shall be considered prima facie evidence that the bidder has made

such an examination and is satisfied as to the conditions to be encountered, as to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of the specifications, plans and contract, or contracts."

(7) Section 4, subparagraph (a) of said specifications reads as follows:

"Commencement of Work.—The Contractor shall commence work within ten (10) days after the execution of the contract for the work by the Board of Directors and shall continue without interruption unless otherwise directed by the District. At least three (3) days before starting, the Contractor shall notify the District Engineer in writing of the date that work is to commence." [142]

(8) Section 4, subparagraph (b) of said specifications reads as follows:

"Completion of Work.—The time of completion of the entire work specified herein shall be within a period of seven hundred and twenty (720) calendar days from the date of the execution of the contract by the Board of Directors."

(9) Section 4, subparagraph (c) of said specifications reads as follows:

"Extension of Time.—The time during which the Contractor is delayed in said work by Acts

of God, or by stormy or inclement weather or by any reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the Contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof."

(10) Section 4, subparagraph (d) of said specifications reads as follows:

"Damages for Delay.—The parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the contract or within such extensions of the contract time as may be allowed as herein provided, it is distinctly understood and agreed that the Contractor shall pay the District as agreed and liquidated damages and not as a penalty five hundred dollars ($500.00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work, said sum being specifically agreed upon as a measure of damage to the District by reason of delay in the completion of the work; it being expressly stipulated and agreed that it would be impracticable to estimate and ascertain the actual damages

sustained by the District under such circumstances; and the Contractor agrees and consents that the amount of such liquidated damages so fixed, shall be deducted and retained by the District from any money then due, or thereafter to become due, the Contractor.

(11) Section 5, subparagraph (a) of said specifications as amended on April 3, 1934, reads in so far as material as follows:

"Partial Payments: Payments will be made only upon the certificate of the District Engineer for work actually performed. The District Engineer shall measure the work on or about the first day of each month and at the time of completion of the entire work, and shall render a certificate on or about the tenth day of each month and at the completion of the entire work, stating the amount of work performed during the previous calendar month, and during the current month, at the time of completion. The Contractor shall then, at the times above specified, be entitled to receive a payment from the District in an amount to be determined as follows: [143]

Until the total value of the work done since commencement of performance of the contract exceeds Four Hundred Thousand Dollars ($400,000.00) the payment will be seventy-five per cent (75%) of the amount specified in the District Engineer's certificate; thereafter and

until the total value of the work done since the commencement of performance of the contract equals One Million Dollars ($1,000,000.00), the constant sum of One Hundred Thousand Dollars ($100,000.00) will be retained by the District out of said total value; thereafter the progress payment will be ninety per cent (90%) of the amount specified in the Engineer's certificate, provided that no such estimate of payment shall be required to be made when, in the judgment of the District Engineer, the work is not proceeding in accordance with the provisions of the contract, or when, in his judgment, the total value of the work done since the last estimate amounts to less than Five Hundred Dollars ($500.00), except the certificate and payment required at the completion of the entire work.

The acceptance by the Contractor of the final ninety per cent (90%) payment for the completed work shall be and shall operate as a release to the District from all claims and liability to the Contractor for anything done or furnished for or relating to the work or for any act or neglect of the District or its agent in any way affecting the work, excepting the claim of the Contractor against the District for the moneys herein provided to be paid by the District to the Contractor thirty-five (35) days after the acceptance of the contract."

Subparagraph (b) reads as follows:

> "Final Payments: Thirty-five (35) days after the acceptance of the work by a certificate of acceptance duly rendered by the District Engineer and final approval and acceptance by the Board of Directors of the District, the Contractor shall be entitled to receive a payment of the balance due under this contract in the amount of ten per cent (10%) of the aggregate amount of all certificates of the District Engineer."

Section 7 of the contract dated June 4, 1934, providing for payments by defendant to plaintiff, is identical with the foregoing provisions of Section 5 of the specifications.

(12) Section 6, subparagraph (b) of said specifications reads as follows:

> "Authority of District Engineer.—The District Engineer shall decide any and all questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of [144] performance and rate of progress of the work, and shall decide all questions which may arise as to the interpretation of the plans and specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Contractor and as to compensation. His decisions shall be final and he shall have executive authority to enforce and make effective such decisions and orders as the Contractor fails promptly to carry out."

(13) Section 6, subparagraph (c) of said specifications reads as follows:

"Compliance with Specifications.—It shall be the duty of the Contractor to see that the provisions of these specifications are complied with in detail, irrespective of the inspection of the work during its progress by the District Engineer or his representatives."

(14) Section 6, subparagraph (d) of said specifications reads in so far as material as follows:

"Inspection. — The Contractor shall afford every facility necessary for the safe and convenient inspection of the work throughout its construction and for inspection of materials used or to be used. The District Engineer shall have power to reject material and workmanship which are not in accordance with specifications, and all such must be removed promptly by the Contractor and replaced to the satisfaction of the District Engineer without extra expense to the District.

The failure of the District Engineer or his representatives to discover and condemn work not in accord- [145] ance with the specifications shall not relieve the Contractor of his obligation to the District to furnish proper materials and work as provided in these specifications; nor shall it relieve the Contractor from being compelled to remove and replace promptly any work found to be defective at any time during

the construction of the work, or before the final acceptance of the work."

(15) Section 6, subparagraph (e) of said specifications reads as follows:

"Disputes.—To prevent disputes and litigation the District Engineer shall in all cases determine the amount, quality and acceptability of the work and materials which are to be paid for under these specifications. He shall determine all questions in relation to said work and materials and performance thereof and all questions which may arise relative to the fulfillment or interpretation of these specifications on the part of the Contractor. His estimate and decision shall be final and conclusive, and in case any question shall arise between the Contractor and the District pertaining to the contract, the District Engineer's estimate and decision shall be a condition precedent to the right of the Contractor to receive any moneys under the contract."

(16) Section 6, subparagraph (g) of said specifications reads as follows:

"Alterations.—In case of reduction or increase in quantities of work, by reason of alterations or any cause whatsoever, the Contractor shall accept payment in full at the contract unit prices for the actual quantities of work done and no allowance will be made for anticipated profits due in such reduction or increase."

(17) Section 6, subparagraph (h) of said specications reads as follows:

"Interpretation of Plans and Specifications. —Should it appear that the work to be done or any matters relative thereto are not sufficiently detailed or explained in the plans and specifications, the Contractor shall apply to the District Engineer in writing for such further details and explanations as may be necessary, and he shall conform to the same as part of the contract insofar as they may be consistent with the original specifications and plans. In the event of any doubt or question regarding the true meaning of the specifications, the decision of the District Engineer shall be final. In the event of any discrepancy between any drawing and figures written thereon, figures shall be taken as correct.

Should the Contractor believe that any work ordered is not properly a part of his contract or according to [146] the intent of these plans and specifications, he shall before commencing same notify the District Engineer in writing of his objection to same and shall not perform such work until notified in writing by the District Engineer as to his decision in the matter. The commencement of any such work shall act as a waiver by the Contractor of any objection he may have to the execution of such work, and as a waiver of any claim for extra work in consequence of such order.

These specifications and plans shall be considered as supplementary one to the other, so that materials and workmanship, indicated, called for, or necessarily implied by the one and not by the other, shall be supplied and placed in the work the same as though specifically called for by both."

(18) Section 6, subparagraph (i) of said specifications reads as follows:

"Compliance with Legislation.—The Contractor shall conform to all federal, State, County and Municipal laws, ordinances and regulations, which may apply to the work herein provided for and during the progress thereof, and shall pay for licenses, fees and other charges levied or charged in accordance with such laws, ordinances or regulations, and no claim for extra payment shall be made to the District for such fee, license or charge, it being specifically understood that such licenses, fees or charges are covered by the unit prices bid."

(19) Section 6, subparagraph (k) of said specifications reads as follows:

"Contractor's Liability.—On all work the Contractor is to assume all liability of every kind or nature, arising from said work, either from accident, negligence or any cause whatsoever during the progress of the work and before the final acceptance thereof, and shall

indemnify and hold the District harmless therefrom, and the bonds given by the Contractor shall hold and secure the said District free and harmless from any or all damage or expense whatsoever."

(20) Section 6, subparagraph (m) of said specifications reads as follows:

"Sub-letting and Assignment.—No subcontractor will be recognized as such and all persons engaged in the work of construction will be considered as employees of the Contractor and their work shall be subject to the provisions of the contract and specifications. Where a portion of the work which has been sublet by the Contractor is not prosecuted in a manner satisfactory to the District Engineer, the subcontractor shall be removed immediately on the order of the District Engineer and shall not be employed again upon the work. [147]

"Neither the contract nor any part thereof shall be assigned unless the Board of Directors first consents in writing to such assignment. Such assignment shall not relieve the Contractor or his bondsmen from any liability whatsoever."

(21) Section 6, subparagraph (n) of said specifications reads as follows:

"Contractor Guarantees Work.—It is understood that the Contractor is skilled in the trade or calling necessary to perform the work herein set forth and that the District, not being skilled

in such matters, relies upon the Contractor to do and perform all work necessary, and to do, supply and furnish all the acts and things necessary, at the proper times and in the most skilful and desirable manner, and the Contractor guarantees the workmanship and materials furnished and supplied to be the best of their kind. The acceptance of any part or of the whole of the work does not operate to release the Contractor or his bondsmen from said guarantee."

(22) Section 6, subparagraph (q) of said specifications reads as follows:

"District May Perform Work.—(1) The Contractor agrees that if the work to be done under this contract shall be abandoned, or, if in the opinion of the Board of Directors the work or any part thereof is unnecessarily or unreasonably delayed, or if the same is not prosecuted with the diligence and force specified, meant and intended in and by the terms of the contract; or if the Contractor is wilfully violating any of the conditions or covenants of the contr ..t and specifications or of the plans or of any part of the contract, or is executing the work in bad faith, the said Board of Directors shall then have the power to notify said Contractor to discontinue the work or any part thereof under the contract, and thereupon the Contractor shall cease to continue such work or such part thereof as the Board of Directors may designate.

(2) The said District shall thereupon have the power to place such or so many persons and to obtain by contract, purchase or hire such animals, equipment, tools, materials and labor as the District Engineer may deem necessary to work at and to be used to complete the work herein described, or such part thereof as the District Engineer may deem necessary; and to use such materials as may be found upon the site of the work, and to procure other material for the completion of the work, and to charge the expense of such labor, material, animals, equipment, etc., to the Contractor, and the expense so charged shall be deducted and paid by the District out of such money as may be due or may at any time thereafter become due to the Contractor under and by virtue of this contract or any portion thereof. [148]

"(3) In case such expense is less than the sum which would have been payable under this contract at the unit prices bid, as calculated from the District Engineer's final estimate if the work had been completed by the Contractor, then the Contractor shall be entitled to receive the difference, but in case such expense shall exceed the last said amount then the Contractor and his bondsmen shall be jointly and severally liable to pay the amount of such excess to the District on notice by the District of the amount of excess so due."

(23) Section 6, subparagraph (r) of said specifications reads as follows:

"Temporary Suspension of Work.—The District Engineer shall have the authority to suspend the work wholly or in part for such period as he may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for such time as he may deem necessary due to the failure on the part of the Contractor to carry out orders given, or to perform any provision of the contract. The Contractor shall immediately respect the written order of the District Engineer to suspend the work wholly or in part. The work shall be resumed when conditions are favorable and methods are corrected, as ordered or approved in writing by the District Engineer."

(24) Section 6, subparagraph (s) of said specifications reads as follows:

"Lines and Grades.—The Contractor is to furnish free of charge all stakes necessary for marking and maintaining points and lines given by the District Engineer; and shall give the District Engineer such facilities and materials for giving said lines and points as he may require, and the District Engineer's marks must be carefully preserved.

Sufficient points to line and grade will be set for the Contractor to work to and no additional stakes will be set. Any such stakes or marks

lost, damaged or obliterated shall be replaced at the expense of the Contractor.

The Contractor shall do his own engineering and shall be responsible for the completion of the work to proper lines and grades in conformance with the stakes set by the District Engineer.

The District Engineer shall be furnished facilities for the checking of lines, elevations, grades and forms at all times during the progress of the work. The Contractor shall, without charge to the District, provide openings for and suspend work that will in any way interfere with the surveys, at such times and for such periods as the District Engineer may deem necessary." [149]

(25) The part of said specifications dealing with tunnel construction contains the following provisions:

Section 32, subparagraph 3:

"Safety Rules.—The Contractor shall provide himself with copies of 'Tunnel Safety Rules' and 'General Construction Safety Orders Relating to the Storage and Use of Explosives,' together with all revisions and amendments thereto, as required by the Industrial Accident Commission of the State of California and keep copies of these at the site of the work at all times. He shall consult with officials of the Industrial Accident Commission and inform himself of any and all conditions which they

may require, whether set forth in the published rules or specially provided for on this work. He shall thoroughly familiarize himself with the provisions of said rules and all regulations of said Commission and govern all his operations by the requirements in all particulars where the same are applicable. He shall see to it that all superintendents, foremen and other employees having responsibility for the various phases of the tunnel work are likewise familiar with the provisions referred to above, and that all work is conducted in accordance therewith. The requirements concerning ventilation, general safety precautions, transportation, roof inspection, timbering, electrical installations and use of explosives are of particular importance.

Representatives of the U. S. Bureau of Mines and of the Industrial Accident Commission of the State of California shall be afforded free access to the work at all times and be given every facility for inspecting methods, equipment and familiarity of workmen with the various safety rules and requirements.

All Federal and State regulations for such work or parts thereof and regulations of Counties and Municipalities having local jurisdiction shall be strictly adhered to, and authorized officials representnig the Federal or State governments or Counties or Municipalities having jurisdiction shall be given every facility for inspection and proper enforcement of rules, pro-

visions, regulations and ordinances which may apply to the conduct of the work. The Contractor shall be responsible during the entire progress of the work for the proper enforcement of all such requirements and shall assume all liabilities which may occur due to accidents of any kind or nature. The fact that no apparent violation of rules or regulations has occurred shall not serve to relieve the Contractor of his full liability or responsibility in case of accident or damage to persons, employees, or to any part of the work.

Provisions shall be made by the Contractor for a supply of fresh air sufficient for the safety, comfort and efficiency of all persons engaged in the tunnel construction, at all times in all portions of the work. [150] Provisions shall be made for the quick removal of gases resulting from blasting and frequent tests shall be made for harmful or explosive gases emanating from the rock structure.

Should compliance with safety rules and regulations require special equipment the Contractor shall at all times keep on hand on the work enough of such special equipment to supply, in addition to his own requirements, complete equipment for at least three men, for the use of the District Engineer and his assistants in inspections of the work or in giving lines and grades, or as the District Engineer may direct."

Section 32, subparagraph 4:

"Geological Data.—A preliminary report on geological structures throuph which the tunnel will pass is on file in the office of the District Engineer. This report is available for inspection by prospective bidders at the office of the District Engineer. The Board of Directors of the District and the District Engineer do not guarantee in any respect the accuracy of this report or the findings of recommendations contained therein. The fact that prospective bidders are permitted to inspect this report shall not in any respect relieve prospective bidders of their responsibility to make their own investigations as to the materials which may be encountered or the geological structures, independent and separate from those made by the District, and the Contractor shall have no claim whatsoever for damages, unexpected costs, difficulties, or for the alteration or voiding of the contract, should materials encountered vary in any respect from those indicated in the preliminary report referred to."

Section 32, subparagraph 5(a):

"Excavation of Tunnels: (a) Excavation.—The Contractor shall use approved modern methods in driving and excavating the tunnels, such as will assure a good rate of progress. He shall furnish and install all timbering, lagging and other supports necessary to provide ample security against falling earth or rock, caving or

other movements of the roof, sides or bottom of the excavation. He shall provide for the proper drainage and disposal of water encountered in the excavation.

Before performing any excavation in the tunnel the Contractor shall submit to the District Engineer his proposed method of procedure, giving in detail the various operations leading up to and including the final completed line section, and no such work shall be performed until the approval by the District Engineer of the procedure has been obtained. Such approval by the District Enginere shall not, however, in any way relieve the Contractor of his responsibility for the failure of the method, or for lack of proper progress in his operations. [151]

Section 32, subparagraph 5(b):

"Overbreak.—Excavation shall be of sufficient size to allow for the proper bracing timbering, construction of lining and forms, and drainage. Extreme care shall be taken in making excavation for the tunnel that the minimum of earth or rock shall be removed or allowed to cave or settle outside of the outer periphery of the concrete structure which forms the tunnel lining. However, should the Contractor damage or shatter, in any way, materials lying outside of the neat lines of the concrete structure, or should it become necessary in order to properly support the excavated sections that excess volumes be excavated to permit proper timbering

or other supports, the Contractor shall remove the rock or materials so damaged or excavated, and the space between the neat lines of the concrete structure, and the lines of actual excavation shall be filled with Portland Cement Concrete mixed in the same proprotion and placed at the same time as the concrete in the neat structure, or, when permitted by the District Engineer, dry packed and grouted as hereinafter provided. When timber is employed for tunnel timbering it shall be removed before any concrete is placed, and any spaces outside the neat lines of the concrete structure caused by such removal shall be filled with concrete as above provided. In the event that it is found impracticable, in the opinion of the District Engineer, to remove timbering or portions thereof, such timbering may be allowed to remain permanently in place, but in no case shall such timber so remaining be allowed to project into the neat lines of the concrete structure. Where timber is permitted to remain, all spaces outside of the neat lines of the concrete structure shall be filled with concrete mixed in the same proportions and placed at the same time as the concrete in the neat structure. If structural steel shapes are used for tunnel sets they may be allowed to remain permanently in place provided that they do not project into the concrete more than four inches (4") beyond said neat lines of the concrete structure.

Any excavation which, due to requirements of timbering or the nature of the material, or caused by over-breakage, extends more than one foot (1′) from the outside neat lines of the concrete structure, may, at the option of the Contractor, in lieu of replacing with the Structural Concrete specified, be filled to within one foot (1′) of said neat lines of concrete with spalls, boulders, or other material approved by the District Engineer and grouted in with a cement grout consisting of one (1) part of cement to three (3) parts of fine aggregate, and applied as directed by the District Engineer and to his satisfaction. Such construction, however, shall not be permitted within the one foot (1′) space outside of the neat lines of the concrete structure, and such space shall be filled only with Portland Cement Concrete mixed in the same proportion and placed at the same time as the structural concrete, provided that if steel liner plates and ribs are used and are allowed by the District Engineer to remain in place, the [152] spaces back of plates and ribs shall be dry packed and grouted as provided, but any space between the plates and the neat lines of the structure shall be filled with concrete at the same time as the neat structure.

Wherever reference is made to 'neat lines of the concrete structure' it is hereby specified that the neat lines so referred to are the outside lines of the structural concrete lining, as shown on the plans."

Section 32, subparagraph 5(e):

"Timbering.—The term 'Timbering' as used herein shall include all wooden pieces or structures used to support the earth or rock adjacent to any excavation. The Contractor shall furnish, put in place, construct and maintain all timbering necessary to support the sides and top of the excavations, preliminary to the placing of the concrete lining. The timbering shall be so constructed as to prevent any movement or caving which might in any way injure the proposed structures or endanger any person. Wherever, in the opinion of the District Engineer, sufficient or proper timbering has not been provided, the Contractor shall furnish additional timbering. but neither compliance with the District Engineer's instructions nor failure of the District Engineer to give such instructions shall relieve or release the Contractor from his responsibility for the sufficiency of the timbering.

It is the general intent of these specifications that all timbering shall be removed from the excavation before concrete is placed. Should conditions arise where, in the opinion of the District Engineer, it is impracticable to remove certain timbers or structures, such timbering, upon the written consent of the District Engineer, may be permitted to remain, subject, however, to the provisions herein contained in respect to clearances outside of the concrete lin-

ing. Timbers allowed to remain in place shall in no case project into the neat lines of the concrete structure, and, in the event that it is apparent, during the process of excavation and timbering, that the safety of the excavation will require timbering to remain in place, the Contractor shall enlarge the excavated section to the extent necessary to set the timbers outside of future concrete lines; timbers found to project within the concrete lines shall be removed and reset before concreting. Permission to allow timbers to remain will not be granted for any other reason than to secure the safety of the structure.

Where timber is allowed to remain it shall be keyed or wedged firmly against the adjacent rock or earth, and shall be securely fastened, spiked or bolted so that no movement, shifting or settlement shall occur. All joints shall have full and firm bearing, timber to timber, without shimming or blocking. All timber, whether permanent or temporary, shall be sound Douglas fir and no second-hand material shall be used, provided, however, that material already used in tunnel construction and removed in good condition, may, with the approval of the District [153] Engineer, be reused where conditions permit.

Timbering shall be placed in such a manner as to be readily removed, without endangering the safety of the excavation or causing weak-

ness or excessive stresses in adjacent timber sets or concrete structures, and any damage which may occur shall be remedied by the Contractor at his own expense, including the removal and replacement of any concrete which has, in the judgment of the District Engineer, been damaged or subjected to excessive loads on account of such operations.

Lagging behind timber sets shall be restricted to the least extent consistent with safety, and, if, in any case, permitted by the District Engineer to remain permanently in place, shall be so spaced as to permit the unrestricted flow of concrete through the lagging to fill any spaces between the lagging and the excavated surfaces."

Section 32, subparagraph 5(f):

"Structural Steel Supports.—Structural steel shapes may be used to support the sides and tops of the excavation, either entirely or in connection with timbering. Where structural steel ribs are used the same may be allowed to remain in place, provided that they do not project into the concrete more than four inches (4") beyond the neat lines of the concrete structure. The manner of framing, supporting and removal shall be such as to fully support the excavation while in place, and permit removal without endangering other parts of the structure. All timbering used in connection therewith

shall conform to the requirements set forth under 'Timbering' including the removal before concrete is placed. Where steel is permitted to remain in place, all spaces between the steel and the adjacent earth or rock shall be thoroughly filled with concrete so as to provide firm and uniform bearing and the steel ribs and liners shall be so constructed and erected that no settlement or movement will occur. Liner plates allowed to remain in place shall not project into the neat concrete structure."

Section 32, subparagraph 5(g):

"Types of Tunnel Section.—Two typical tunnel sections are shown on the plans. The District Engineer shall determine which section shall be used in any specific location in order to meet varying conditions which may be encountered. In general, it is expected that the Type 'A' section will be used throughout the major length of the tunnels, but if conditions arise which, in the judgment of the District Engineer, require the use of Type 'B' section, the Contractor shall make such modifications in construction as may be necessary.

No extra payment will be allowed on account of such change, but the unit prices bid for the various units or [154] types of work shall include full compensation for such work, labor, material or equipment as may be necessary."

(26) The amendment and supplement to final specifications for the construction of said project,

adopted January 9, 1934, reads in so far as material herein in part as follows:

"The attention of all bidders is hereby specifically called to Bulletin No. 2 of Federal Emergency Administration of Public Works entitled 'General Information and Instructions for the Guidance of State Advisory Boards and State Engineers (P. W. A.).' A grant of thirty (30) per cent of the cost of labor and material used in the project of the District has been made by the Public Works Administration of the United States under the terms of said National Industrial Recovery Act, and all bidders are hereby advised that the Directors of the District will cooperate with the Public Works Administration and all its officers and employees in the enforcement of all of the provisions of said National Industrial Recovery Act and the rules and regulations heretofore and hereafter promulgated applicable to the performance of the work on the project of the District.

Bidders are advised to secure complete information as to the rules and regulations of the Public Works Administration applicable to the work to be performed to complete the project of the District, to the latest date available at the time the respective proposals of the bidders are submitted to the District."

XIII

Finds that subsequent to the first day of June, 1936, the District Engineer of defendant estimated

and certified the amount of work done by plaintiff under the terms of said contract for the month of May, 1936, and the sum due the plaintiff on or before June 10, 1936 under the terms of said contract, which sum was $152,086.98 (less $3,500 stipulated damages for delay as hereinafter found), and defendant on June 10, 1936 did transmit to plaintiff the sum of $148,586.98, the amount of said estimate less the sum of $3,500, the said retained payment of $3,500 being the sum of $500 a day for seven working days retained by defendant as agreed and liquidated damages because the said contract had not been completed within seven hundred and twenty calendar days from the time of entering into the same. The plaintiff herein did on [155] said 13th day of June, 1936 return the amount so paid to plaintiff by defendant, with its said purported notice of rescission.

At no time before said attempted rescission, nor at any time thereafter, did the plaintiff demand of defendant the payment of said sum of $3,500 or any part thereof or protest against the withholding of the same or any part thereof, nor make upon the defendant any demand whatever therefor or for any part thereof, but quit and abandoned said work and refused to proceed further with the same.

At no time after the tender by defendant to plaintiff of said sum of $148,586.98 or after the plaintiff had knowledge that said defendant had deducted the amount of liquidated damages hereinbefore referred to did the said plaintiff request the

District Engineer of defendant to make any determination on said matter or to determine the said or any other question in relation to the said work and materials furnished by the plaintiff or the performance of said contract or to the fulfillment or interpretation of any clause in the specifications, but the said plaintiff on June 13, 1936, did serve and file its said notice attempting to rescind said contract and did entirely cease all work on said project and did refuse to continue to perform any work under said contract, and ever since has and still continues so to refuse, without making any demand whatever upon defendant District to make the said payments so withheld or to have the matter determined by the District Engineer, or to submit any matter in dispute between plaintiff and defendant to said District Engineer.

The total contract price for the performance of said work was and is a sum in excess of $3,500,000. When the said plaintiff abandoned said work the work to be performed under said contract was about seventy per cent complete. [156]

XIV.

Finds:

(1) That defendant withheld said sum of $3500 as agreed and liquidated damages because of the failure of plaintiff to complete said contract within the specified time and under an honest belief that the defendant had the right so to do and was required so to do by the provisions of the agreement between the parties, and finds that defendant at all

times was ready, able and willing to submit the matter to the District Engineer for determination in accordance with the provisions of subdivision (e) of Section 6 of the specifications, as above found.

(2) With reference to the claim of rescission based upon defendant's failure to grant an extension of time, in this connection the court finds that plaintiff asked for such an extension of time for 180 days on the 10th day of June, 1935, which request was refused by defendant on the 12th day of July, 1935; that said plaintiff was requested by the District Engineer to specify and itemize the reasons for its request for an extension of time but no such itemized request was ever submitted. Finds that on the 8th day of May, 1936 plaintiff requested 600 days extension of time to complete said work but did not specify or itemize the reasons for the amount of time it was asking for any specific portion of the work upon which it claimed it was delayed, nor submit any evidence in connection with such request; that such request for 600 days extension of time was denied by the District and written notice thereof delivered to plaintiff on May 14, 1936.

(3) The court finds that said request for an extension of time for 600 days was unreasonable and that the said work could have been completed by plaintiff within 200 days from June 13, 1936; said request was not itemized so the District or the District Engineer could determine how many days

the plaintiff [157] claimed to have been delayed for any of the respective matters set forth in said request. Notwithstanding the denial of said first application on July 12, 1935 plaintiff continued with the work until the 13th day of June, 1936 and did receive and accept from defendant during that period of time and on account of said work under the terms of said contract sums in excess of $1,000,000.00, and notwithstanding the fact that on the 14th day of May, 1936 plaintiff knew that its extension of time for 600 days was denied plaintiff continued with the work until the 13th day of June, 1936.

(4) At no time did plaintiff comply with the request of the District Engineer for any itemization of its various claims for delay, nor did plaintiff present a new and further application for extension of time for any lesser number of days than 600, with specific itemization as to its reasons for various delays and the number of days it claimed to be delayed for any specific cause. The District in denying said extension of time acted in good faith and not arbitrarily or capriciously.

(5) The court finds that the said Contractor was not delayed in said work by any act of God, or by stormy or inclement weather, or by any reason which in the judgment of the District Engineer unavoidably delayed the work, but on the contrary the court finds that the work of the Contractor was not unavoidably delayed and that any delays that occurred were because of the method of work

adopted by the Contractor, and that in passing upon all such questions the District and its Engineer acted fairly and honestly.

(6) With reference to the claimed right of rescission by plaintiff because of the claim of plaintiff that there was a difference in underground conditions as such claim is stated in said notice of June 13, 1936, the court finds that the underground conditions were known and ascertained by plaintiff prior to the [158] 1st day of January, 1935; that in addition plaintiff by its contract took the risk of completing the work and of any underground conditions encountered; that it was the obligation of plaintiff under the contract to perform the work and overcome any conditions that might be encountered in the performance thereof, and that notwithstanding plaintiff's claim that such conditions were misrepresented plaintiff continued to perform the contract after full knowledge of all conditions for more than eighteen months before it abandoned the contract and during such period did accept from defendant sums in excess of $1,500,000.00 as compensation for said work; and the court finds that with full knowledge of said conditions from almost the inception of the contract plaintiff continued with said work for more than one year after entering into said contract without making any complaint that underground conditions were different than those plaintiff claims to have anticipated. Finds that defendant at no time made any misrepresentations to plaintiff.

(7) The court finds that as early as the 26th day of December, 1934, plaintiff made a claim on defendant that defendant was not furnishing points, lines and grades, and other engineering work which plaintiff claimed defendant should furnish it under the contract. In this connection the court finds that the defendant furnished plaintiff all the engineering work required to be furnished under the agreement, and further finds that as early as the 22nd day of January, 1935 defendant communicated in writing its position to plaintiff and informed plaintiff that defendant would not furnish the additional engineering demanded by plaintiff; that notwithstanding plaintiff's knowledge of the position taken by defendant with reference to this claim plaintiff continued to work under said contract until the 13th day of June, 1936, and from the time of first making said claim until cessation of work [159] plaintiff received from defendant sums in excess of $1,400,000.00 in connection with work under said contract.

(8) The court further finds that as to all matters stated in said notice of rescission, at no time did plaintiff request that these or any of them be submitted to the District Engineer of defendant in order that said District Engineer might determine any or all questions in relation to said work or materials or the performance of said contract, or any or all questions which had arisen relative to the fulfillment or interpretation of specifications on the part of plaintiff, which specifications at all

times were and are now a part of said contract. The court finds that said District Engineer was never so requested by plaintiff in writing or otherwise, nor was any demand in writing or otherwise ever made by plaintiff upon defendant to have these matters in dispute submitted to said District Engineer for decision.

(9) The court finds that by the foregoing plaintiff has waived any right, if it ever had any such, to rescind such contract because of the said matters in this paragraph XIV specified and found or as mentioned in said purported notice of rescission, or any of them, and that any right of plaintiff to rescind, if it ever had any such, was and is waived by acquiescence, laches and delay; and the court further finds that in finding any right was waived by acquiescence, laches and delay the court does not intend to and does not find that plaintiff had any right to rescind; on the contrary the court specifically finds that said rescission was without justification or right upon the part of plaintiff, and the quitting of said work and refusing to proceed by plaintiff was an abandonment of the contract and a breach thereof. [160]

XV

Finds that at no time from the time of the entering into of said contract by plaintiff until the abandonment of the said work and contract on the 13th day of June, 1936 did plaintiff before commencing any work which plaintiff claimed was not properly

a part of the work under said contract, notify the District Engineer in writing of plaintiff's objection to the same and refusal to perform such work until notified in writing by said Engineer of his decision in the matter, but on the contrary the said plaintiff without such written objection and without any written decision by said Engineer did continue with said work and did perform all work under said contract until the 13th day of June, 1936, when the same was abandoned by plaintiff as aforesaid.

XVI.

Finds that subsequent to its organization the defendant District caused final surveys, plans, specifications and detailed drawings to be prepared for said project and did include therewith the final estimate of the cost of said project, and the same were approved by the board of supervisors of each of the counties within said District, namely, the Board of Supervisors of the County of Alameda and the Board of Supervisors of the County of Contra Costa, State of California, and by the Director of the Department of Public Works of the State of California, and a certified copy of said final surveys, plans, specifications and detailed drawings and of said estimated cost was transmitted to the Director of said Department of Public Works of the State of California.

XVII.

Finds that after the approval of said final plans and specifications, as aforesaid, the defendant did

cause a notice inviting sealed proposals and bids for the construction of its said project to be published twice in a newspaper of general cir- [161] culation published and circulated within the District, namely, in "The Oakland Tribune," which newspaper was designated for such purpose by the Board of Directors of said District, the first publication of which notice inviting said bids was printed and published on May 7th, 1934 and not less than ten days prior to the time fixed for receiving such bids. Pursuant to said notice bids for the construction and completion of said project were received and opened on the 22nd day of May, 1934, and the bid of plaintiff for the sum of approximately $3,683,931.00 for the construction and completion of said project and the performance of all work in connection therewith was accepted by defendant and the contract awarded to plaintiff as the lowest responsible bidder; that plaintiff was in fact the lowest responsible bidder for said work.

XVIII.

Finds that thereafter and on the 4th day of June, 1934, pursuant to said call for bids and the bid of plaintiff and the award made to plaintiff by defendant, a contract in writing was entered into between plaintiff and defendant wherein and whereby plaintiff agreed with defendant that plaintiff pursuant to the terms of said contract and for and on behalf of defendant would construct, erect and complete the said project of defendant and do and

perform all work in connection therewith, all as described in said contract and all in accordance with the final surveys, plans, specifications and detailed drawings therefor theretofore adopted by the Board of Directors of said Joint Highway District No. 13, and which said contract, plans and specifications at all times herein mentioned have been on file in the office of the defendant District.

XIX.

Finds that the said contract so let pursuant to the said bid of plaintiff included all work which was to be done in [162] connection with said project, and no other contract with plaintiff was ever let therefor nor for any part thereof, and until said work was abandoned by plaintiff no other call for bids was ever made by defendant and no other final surveys, plans, specifications, detailed drawings or estimates for said work have been made.

XX.

Finds that pursuant to said contract of June 4, 1934, defendant from time to time has paid plaintiff the monthly progress payments provided for in said contract and continued to make such payments up and until the 13th day of June, 1936, on which date plaintiff abandoned said contract and work and refused and thereafter continued to refuse to perform said work or to complete the said project or any part thereof.

XXI.

Finds that said plaintiff has not been requested by defendant to perform any work except the work specified in said contract, and plaintiff has performed no other work for defendant and has made no bid for any other work. The said contract of June 4, 1934 is the sole and only contract and the sole and only understanding between the plaintiff and defendant for the performance of the work specified in said contract.

XXII.

Finds that said final surveys, plans, specifications and detailed drawings so prepared by said defendant District did include a final estimate of cost, which estimate did not exceed the estimate named in the preliminary report of the District Engineer for said project. The bid of plaintiff was within the said final estimate. The purported claim of plaintiff sued upon herein exceeds its said bid and the said final estimate by a sum greatly in excess of ten per cent of said final estimate. There [163] has been no approval by the Board of Supervisors of any County comprising said District or of the Director of the Department of Public Works of the State of California of the said increase in costs sought to be recovered by plaintiff herein. The State of California has contributed a part of the cost of said project, namely, the sum of $700,000.00.

XXIII.

Finds that each of the cross-defendants hereinafter mentioned, at all the dates and times herein mentioned and at the time of the filing of said cross-complaint, was and is now a corporation duly incorporated, organized and existing under and by virtue of the laws of one of the several States of the Union as hereinafter in this paragraph respectively designated for each of said respective cross-defendants:

(a) Hartford Accident and Indemnity Company, a Connecticut corporation;

(b) Fidelity and Deposit Company of Maryland, a Maryland corporation;

(c) The Aetna Casualty and Surety Company, a Connecticut corporation;

(d) Indemnity Insurance Company of North America, a Pennsylvania corporation;

(e) American Surety Company of New York, a New York Corporation;

(f) Maryland Casualty Company, a Maryland corporation;

(g) United States Fidelity and Guaranty Company, a Maryland corporation;

(h) The Fidelity and Casualty Company of New York, a New York corporation;

(i) Glens Falls Indemnity Company, a New York corporation;

(j) Standard Surety and Casualty Company of New York, a New York corporation; [164]

(k) Standard Accident Insurance Company, a Michigan corporation;

(l) Massachusetts Bonding and Insurance Company, a Massachusetts corporation;

(m) Continental Casualty Company, an Indiana corporation.

(n) New Amsterdam Casualty Company, a New York corporation.

XXIV.

Finds that at all the dates and times herein mentioned and at the time of the filing of said cross-complaint the said cross-complainant was and is now a citizen of the State of California, and the respective cross-defendants and each of them in the preceding paragraph mentioned, and the plaintiff and cross-defendant were at all the dates and times herein mentioned and are now citizens of States other than the State of California.

XXV.

Finds that the proceeding on said cross-complaint is one of a civil nature, and the parties to said cross-complaint were at all the dates and times herein mentioned and still are citizens of different States; that the sum involved in said cross-complaint, exclusive of costs and interest, is in excess of the sum of $3,000.00, the claim of defendant in the prayer of its cross-complaint being for the sum of $383,568.16.

XXVI.

Finds that on the 4th day of June, 1934, the contract in writing mentioned in paragraph VII hereof was duly and regularly entered into between Six Companies of California, a Nevada corporation, plaintiff herein, and defendant herein, and delivered upon said date by plaintiff to defendant, for the performance of the work hereinbefore mentioned and as hereinbefore found. [165]

XXVII.

Finds that plaintiff as said Contractor did also deliver as part of said contract a certain bond conditioned upon the faithful performance of said contract by plaintiff, which bond was executed by plaintiff and by each of the other cross-defendants. Said bond expressly referred to said contract as that annexed thereto and was made a part of such contract. Such bond above referred to, so made, executed and delivered by plaintiff and by each and every of the other cross-defendants to the defendant and cross-complainant is attached to the cross-complaint of said cross-complainant and marked Exhibit "A". [166]

XXVIII.

Finds that plaintiff proceeded with the work specified to be done in said contract between plaintiff and defendant and continued with said work up to and including the 13th day of June, 1936, upon which date the plaintiff abandoned the said contract and the said work and then and there

refused and ever since has refused to continue with the same or to further perform said agreement or any part thereof.

XXIX.

Finds that upon the abandonment of said work defendant in writing notified plaintiff and cross-defendant and each of the other cross-defendants that it considered the action of plaintiff in refusing to perform said contract an abandonment thereof, and said defendant and cross-complainant caused notice to be served upon plaintiff and cross-defendant and upon each and every of the other cross-defendants to resume work within three days after the receipt of said notice or the said defendant would construe said acts of the plaintiff as a final abandonment of said contract; a copy of which said notice so delivered to the plaintiff and cross-defendant and to all of the other cross-defendants herein is hereinbefore set forth in paragraph X of these Findings, to which reference is hereby expressly made.

XXX.

Finds that notwithstanding the receipt of said notice by said plaintiff and cross-defendant and by each of the other cross-defendants the said plaintiff and cross-defendant, and each of the other cross-defendants, then and there refused and ever since have refused to continue with the said work or to further perform said contract or any part thereof or any of the work thereunder.

XXXI.

Finds that upon the abandonment of said contract by [167] plaintiff it became necessary for defendant (a) to protect and maintain said work in the unfinished state in which it had been left upon the abandonment of said contract; (b) to measure said work in order to call for bids for the completion of the same and to prepare and secure approval of supplemental specifications by the Department of Public Works of the State of California and the Public Works Emergency Administration of the United States for the completion of the work; (c) to readvertise for bids for such completion; and (d) to secure insurance protecting the defendant against loss by fire and against certain other hazards hereinafter mentioned.

In connection with the maintenance and protection of said work it was necessary for defendant to employ engineers, watchmen and laborers, and to secure materials, supplies and equipment. The reasonable cost of all such protection and maintenance at all times herein mentioned was and is the sum of $47,944.33.

At all times herein mentioned the reasonable cost of measuring said work and of completing said specifications was and is the sum of $5,134.22.

In order to secure bids for new contracts to complete the work it was necessary to readvertise for such purpose, and at all times herein mentioned the reasonable cost of such advertising was and is the sum of $1,862.45.

Upon such abandonment by plaintiff the defendant did secure fire insurance protecting the defendant against the hazard of fire to its property and equipment in said project, and did also secure Workmen's Compensation and Liability Insurance protecting the defendant against claims for injury to any of its employees and for damage or injury to others by reason of the operations of the defendant in maintaining and protecting said work; [168] the reasonable cost of all of said insurance at all times herein mentioned was and is the sum of $14,060.85.

Said sums in this paragraph mentioned in the aggregate amount to $69,001.85, and at all times herein mentioned were and are reasonable.

XXXII.

Finds that said contract provided for progress payments to be made each month by defendant to plaintiff for work done during the preceding month and said contract also provided for the retention by defendant of a sum which in the aggregate should not exceed ten per cent of the contract price, said retained sum to be paid to plaintiff thirty-five days after the completion of the contract by plaintiff. Prior to said default of plaintiff, defendant had paid to plaintiff the sum of $2,021,047.11, which sum represented ninety per cent of the contract price for work done by plaintiff for defendant prior to May 1, 1936 and the defendant retained from said progress payments the sum of $224,560.79, or ten per cent of the contract price, for work done prior

to May 1, 1936. Plaintiff refused to accept the sums tendered by defendant for work performed by plaintiff after May 1, 1936, and defendant has in its possession the sum of $265,891.82 for all work performed by plaintiff after May 1, 1936, as per estimate, and also the said sum of $224,560.79 the said retained percentage above referred to, also a credit for plaintiff of $2,806.55 for partly performed work, said sums aggregating $493,259.16, less liquidated damages of $10,000 retained by defendant, the net amount being $483,259.16.

The reasonable cost of completing the work agreed to be done by plaintiff which remained uncompleted when the plaintiff abandoned the same was and is the sum of $1,751,611.74. Said sum exceeds the sum specified in said contract of June 4, 1934, to be paid by defendant to plaintiff for such work by the sum of [169] $591,325.47. The difference between this last mentioned amount and the sum of $493,259.16 (the aggregate amount still retained by defendant for work done by plaintiff prior to the abandonment of the contract, without any deduction for liquidated damages) is the sum of $98,066.31, which last mentioned sum is the reasonable increased cost of completing the work over the contract price because of plaintiff's default, less credit to plaintiff for any sums heretofore earned by plaintiff.

XXXIII.

Finds that under the provisions of said contract of June 4, 1934, the time when plaintiff was to com-

plete all of the work expired on the 24th day of May, 1936, and when said work was abandoned by plaintiff on June 13, 1936 plaintiff was in default in the completion of said work for a period of twenty days.

Upon the abandonment of said work by plaintiff it became necessary for defendant to measure said work in order that it could call for bids to complete the same, to prepare and secure approval of supplemental specifications by the Department of Public Works of the State of California and the Public Works Emergency Administration of the United States for the completion of the work, and to readvertise for bids for such completion and to enter into contracts therefor. The time required for all of said purposes was one hundred and forty-nine days and the said period of time was and is a reasonable time therefor, and said defendant did proceed with all reasonable dispatch and due diligence so to do.

The first new contract for the completion of the work was entered into on the 9th day of November, 1936, and the reasonable time for the completion of all said work was and is a period of two hundred and sixty-four days from and after said last mentioned date.

The periods of delay in the completing of said work [170] caused by the default of said plaintiff are as follows: A period of twenty days from May 24, 1936, when said time for completion expired, to June 13, 1936 when plaintiff abandoned said

contract; a period of one hundred and forty-nine days, the reasonable time to measure the said work remaining to be done after plaintiff's default in order to call for bids for the completion of the contract and to secure approval of supplemental specifications by the Department of Public Works of the State of California and the Public Works Emergency Administration of the United States, and to readvertise for bids for the completion of said work and to enter into the first new contract therefor; a period of two hundred and sixty-four days, the reasonable time for the completion of all said work after the entering into of said new contract. All said periods of time were and are reasonable and amount in the aggregate to four hundred and thirty-three (433) days delay in the completion of said work, all caused by the action and default of plaintiff.

XXXIV.

Finds that it is provided in said contract of June 4, 1934, that the said contractor, plaintiff herein, shall pay to the defendant as agreed and liquidated damages $500 for each and every working day which may elapse between the limiting date provided in said contract and the date of the actual completion of the work, and that said sum is specifically agreed upon between the parties as a measure of damage to the defendant by reason of delay in the completion of the work, it being expressly understood and agreed that it would be impracticable to estimate and ascertain the actual

damage sustained by the defendant District because of such delay.

XXXV.

Finds that it is and at all times herein mentioned was extremely difficult to estimate the damage which would be sus- [171] tained by defendant because of any delay in the completion of the project of defendant District. The work to be done by said plaintiff for the defendant consisted of the construction of a highway tunnel and approaches and appurtenances, a portion of one of the main highways in Alameda and Contra Costa Counties; said highway connects with and is a part of the State system of highways at either extremity of said work. Said route is a main artery of travel from the San Joaquin Valley to the congested East Bay area in Alameda and Contra Costa Counties and also leading across the new bridge from the City of Oakland to the City and County of San Francisco. From a large area of the state *is it* a more practical, direct and safer route than any highway now in existence connecting the points above mentioned and is greatly needed by the traveling public.

Defendant's project provides a modern highway of low gradients between Walnut Creek, Contra Costa County, and the business center of Oakland, approximately one and one-half miles shorter than the Claremont Road and approximately two and one-half miles shorter than the Tunnel Road, the previous highways, each of which is a narrow high-

way of steep gradients and sharp curves and which carried a combined traffic in excess of 1,600,000 vehicles per year, all of which traffic can be more safely and economically transported over the new route. The resulting loss, inconvenience and damage caused by the delay in opening the project to use as a public highway is exceedingly great and is and was impracticable of exact ascertainment but exceeds $500 per day.

In this connection the court further finds that because of plaintiff's abandonment and the necessary delay required for the letting of new contracts, and because of the delay in completing said work, defendant has been and was required until the work was completed to maintain a large staff of engineers and other [172] employees and keep an active District organization intact, all at a reasonable cost to said District of approximately $272.89 a day, which cost was entirely eliminated upon the completion of said project, which expense to defendant resulted solely from the delay caused by plaintiff's default in the performance of said contract. Said cost and expense in this paragraph alleged is and was in addition to any claim for damage specified in paragraphs XXXI and XXXII of these Findings.

Defendant has financed the cost of said project by the issuance of bonds upon which defendant paid interest, and defendant paid in interest for the said period of four hundred and thirty-three (433) days delay caused by the default of said plaintiff,

without having the enjoyment of said project, a sum in excess of $89,832.67.

For the reasons above stated and because of the difficulty in ascertaining the actual damage the parties agreed upon liquidated damages as aforesaid.

XXXVI.

Finds that the aggregate damages above referred to are as follows: the sum of $69,001.85, the reasonable cost of protecting and measuring the work and of the other matters hereinbefore in paragraph XXXI hereof alleged; the sum of $98,066.31, the increased reasonable cost for completing the contract abandoned by plaintiff in excess of all credits due plaintiff for work heretofore performed by plaintiff for defendant under said contract, as hereinbefore in paragraph XXXII hereof alleged, and the sum of $142,000.00 as agreed and liquidated damages; said sums amount in the aggregate to $309,068.16 and no part thereof has been paid.

Finds that defendant is not entitled to any liquidated damages for the period of 149 days between June 13, 1936, when plaintiff ceased work on said project of defendant and the letting of new contracts by defendant to complete said work. That the [173] aggregate number of days for which defendant is entitled to liquidated damages at the rate of $500 a day is 284 days, amounting to $142,000.00.

XXXVII.

The court finds that at the time of the filing of said cross-complaint the exact expense of comple-

tion of said contract had not been determined. Finds, however, in this connection it is not a fact that upon the filing of said cross-complaint the said defendant and cross-complainant did not have a cause of action against the cross-defendants but on the contrary finds that it did have such cause of action and that the filing of said cross-complaint was not premature.

XXXVIII.

Finds that the said defendant did proceed to complete the work after the abandonment of said contract by plaintiff in the manner provided in said contract and did not breach the said contract in any way, and that the said cross-defendant Surety Companies are not relieved from liability to defendant under said bond.

Finds that said defendant upon the abandonment of said contract did proceed to call for bids for the completion of said work and let all of said work to the lowest responsible bidders upon contracts regularly called and executed, after due notice for bids.

Finds that the cost of completing said work by said defendant and the amounts expended therefor were and each of them is reasonable.

Finds that none of said cross-defendants is relieved of liability to defendant because of the manner in which defendant completed the work. Finds that no change was made in said work but that the same after the abandonment by plaintiff was com-

pleted by defendant under the exact provisions of the plans and specifications of the contract between plaintiff and defendant. [174]

XXXIX.

Finds that there were no representations by defendant to bidders except such as were contained in the notice to bidders, the proposed contract, and the plans and specifications.

Finds it is not a fact that plaintiff was induced to bid and did bid solely upon the representations contained in the plans, specifications and geological report to which attention of bidders was invited. Finds that plaintiff did not rely upon any representations contained in any geological report in making its bid and that no representations were made by defendant through or by means of any geological report.

Finds it is not a fact that said bid of plaintiff would not have been made except for the representations contained in the plans, specifications and geological report, and in this connection the court finds that said bid would have been and was made without regard to any of the matters and things stated in any geological report.

XL.

Finds it is not a fact that either by the plans or the specifications or any geological report was it represented by defendant to plaintiff that the tunnels to be constructed would be driven through

ground which was self-supporting in character for ninety per cent or more, or for any per cent of the total length of said tunnels; or that the same would be required to be constructed or would be constructed with the use only of temporary timber supports for the excavation of said tunnels, which would be removed before the installation therein of the concrete lining or permanent structure thereof.

Finds that no representations made by defendant to plaintiff were false in any particular. [175]

XLI.

Finds it is not a fact that plaintiff performed any work for defendant in the belief that any representations of defendant other than those contained in the notice to bidders, contract, plans and specifications were true and correct. that except as contained in said documents there were no representations by defendant to plaintiff.

XLII.

Finds that all moneys expended by plaintiff in the performance of said work were expended for the performance of work required to be done under said contract, and that no extra expenditures were made by plaintiff by reason of any false representations of the defendant.

XLIII.

Finds that the contract entered into between plaintiff and defendant required that the tunnels should be constructed at the location designated in the

plans and specifications regardless of the type or character of the ground, and that plaintiff was obligated under its contract to so construct said tunnels and is not entitled to recover from defendant any compensation therefor except as provided in said agreement between the parties and as already paid by defendant to plaintiff.

XLIV.

Finds that there was no misrepresentation of underground conditions by defendant to plaintiff, and finds it is not a fact that the work required to be done by plaintiff in constructing the tunnels was different from that required by the contract, and the court finds in this connection that plaintiff wrongfully and improperly abandoned said work and agreement and has not performed since said abandonment any work under said contract. [176]

XLV.

Finds that it is not a fact that there was any understanding between plaintiff and defendant or contemplation as to underground conditions, nor were there any representations by defendant as to such.

Finds that the contract was not entered into in the contemplation of both parties, or of either of the parties, that the ground would be self-supporting in said tunnels for ninety per cent or for any length thereof, but finds in this connection that plaintiff as contractor took all risk with reference to said

work and that there was no mistake by either party to said contract as to the true conditions, and finds it is not a fact that by reason of any mistake plaintiff was relieved of any obligation to perform the work under said contract or entitled to rescind same, nor did plaintiff so rescind, but on the contrary the court finds the plaintiff without cause or right quit the work and abandoned the contract.

XLVI.

Finds it is not a fact that plaintiff was ignorant of or mistaken as to the ground conditions to be encountered in the construction of the tunnels at the time it entered into said contract, or that the defendant had knowledge of facts and circumstances from which it knew or should have known or suspected at said time the nature of the ground or the self-supporting character thereof for ninety per cent or any part thereof.

Finds that there was no fraud upon the part of the defendant and that defendant made no misrepresentations as to underground conditions, nor did it in any way fail or neglect to inform plaintiff of any facts within its knowledge. On the contrary the court finds that plaintiff represented to defendant that it was skilled in the trade or calling necessary to complete the work [177] and entered into the contract with full knowledge that defendant not being so skilled relied upon the skill of plaintiff to do and perform the work in a skillful manner and plaintiff guaranteed the work; that said plaintiff so

represented that it was so skilled and did so guarantee the work to defendant; that there were no false or fraudulent representations of any kind made by defendant to plaintiff; that plaintiff had all means of knowledge as to underground conditions that were available to defendant and assumed all risk under said agreement, and expressly agreed to do and perform the work required to be done under the contract for defendant and to overcome any difficulties which might be required in the performance thereof for the compensation specified in said contract.

XLVII.

Finds it is not a fact that by reason of any ground conditions encountered in the construction of the tunnel the doing or performance or construction of the work specified in the contract, plans and specifications ever became or was in fact impossible of performance. Finds that all work was done under conditions which the parties assumed to exist or had a right to assume to exist by reason of the statements of the contract, plans and specifications; finds that the work done was not radically or otherwise different in character to the work required to be performed by plaintiff under the contract, nor was there any different work required as the result of ground conditions or otherwise; finds plaintiff was not called upon to do any work nor did plaintiff do any work of such character different to that contemplated that either in truth or in fact no contract ever existed for the work done by the plaintiff, but

on the contrary the court finds that any work done by plaintiff was entirely within that contemplated by the contract. [178]

XLVIII.

Finds it is not a fact that the failure of the District Engineer to give to plaintiff points, lines and grades was and is a breach of said contract or entitled said plaintiff to rescind said agreement, and in this connection the court finds that said defendant District did furnish to the plaintiff all the engineering data which it was required to do under the agreement. The court also refers to and incorporates as part of this finding the language of subparagraph (7) of Finding XIV hereof.

XLIX.

(1) Finds plaintiff requested defendant and the District Engineer for extensions of time to complete the work, which extensions of time were denied by defendant; finds that defendant in denying said requests did not act arbitrarily or capriciously, nor was any action of the District Engineer in connection with requests for extensions of time arbitrary or capricious or otherwise than in the exercise of his honest judgment.

(2) Finds that the plaintiff was not unavoidably delayed in the performance of said work for any time or for any reason at all.

(3) Finds that any delays which occurred in the performance of said work were caused by the acts of the plaintiff over which it had control.

(4) Finds that neither the District Engineer nor the defendant knew of any causes which unavoidably delayed the plaintiff in the performance of its work under the contract.

(5) Finds it is not a fact that when any requests for an extension of time were made by plaintiff that either the defendant or the District's Engineer failed to grant or refused to grant plaintiff a hearing thereon or to afford plaintiff the opportunity of properly or otherwise presenting the same, but on the [179] contrary finds that plaintiff never requested any such hearing and never submitted the said matter to said Engineer for decision. That at all times the said Engineer fairly and honestly gave plaintiff full opportunity to present any matter to him for decision, and at no time did said Engineer or said defendant act arbitrarily or capriciously or fraudently and at no time did either the defendant or its said Engineer know that plaintiff was entitled to an extension of time or deny the same for any arbitrary or capricious or fraudulent reason or for any other reason except their sincere, fair and honest belief that plaintiff was not so entitled.

(6) Finds it is not a fact that said Engineer failed in any way in his duty to plaintiff or to consider whether plaintiff was entitled to an extension of time or failed to exercise his judgment as to whether the work was unavoidably delayed or failed to perform any of his duties or obligations under said contract, but on the contrary the court finds the Engineer fulfilled all of his duties and obliga-

tions under the contract, especially any toward plaintiff, and that his action was with full knowledge of the facts and his discretion was fairly and honestly exercised.

(7) Finds it is not a fact that the District Engineer did not act upon any of said requests of plaintiff for an extension of time or that the same were denied by defendant without reference to the opinion or judgment of said Engineer.

(8) Finds that the said Engineer did on or about the 1st day of June, 1936 estimate the work performed by plaintiff during the preceding month at the contract price at the sum of $152,086.98, and that there was tendered to plaintiff the sum of $148,586.98 and no more, the difference in said sum being the retained liquidated damages of $500 a day for seven days amounting to $3500. Previous estimates of the Engineer stated the total [180] value of the work done by plaintiff since the commencement of the contract exceeded the sum of $2,000,000.00. In this connection the court finds that said plaintiff did work on said project each and every day for the seven days for which the said penalty was retained from and after May 24, 1936. Finds further that said plaintiff never made any demand for the payment of said amount withheld but quit and abandoned the contract without submitting the matter in dispute to the Engineer for decision. Finds that by the withhold of said payment said defendant did not breach the agreement but was acting under and honestly attempting to act under

the said agreement and in accordance with its rights thereunder. Finds no further sum was tendered plaintiff by defendant on account of said progress payment due and payable on June 10, 1936.

(9) Finds it is not a fact that defendant intended to and would have withheld not less than $120,000 from the plaintiff at the rate of $500 a day until the completion of the contract, but on the contrary finds that by the abandonment of the contract said plaintiff did not give said defendant any opportunity to adjust the dispute between the parties.

(10) Finds it is not a fact that said defendant in any way breached its said contract with plaintiff in any substantial or material respect or otherwise or at all.

(11) Finds it is not a fact that the consideration for plaintiff's obligation under the contract failed in part or at all because defendant withheld the said sum of $3500, and finds the withhold of said sum did not justify plaintiff in abandoning the contract.

(12) Finds the failure of defendant to grant an extension of time under the circumstances and the withhold of said sum of $3500 was strictly in accordance with defendant's rights under the agreement, and did not justify the abandonment of said agree- [181] ment without notice and without an opportunity to adjust the dispute, or to justify said abandonment of said agreement at all, and the

consideration of said contract did not fail because of said acts in any respect at all.

L.

Finds it is not a fact that plaintiff was ignorant of ground conditions to be encountered in the construction of the tunnels at the time it entered into said contract; or that plaintiff could not have determined or ascertained the true conditions of the ground to be encountered prior to the submission of its bid or prior to the execution of the contract between plaintiff and defendant.

Finds that plaintiff was not forced to and did not in fact rely upon representations obtained from the specifications and geological report, or either of them; finds plaintiff was not misled thereby; finds that plaintiff was not mistaken as to the true condition of the ground.

Finds it is not a fact that defendant had knowledge of facts and circumstances from which defendant knew or should have known or could have known or suspected at any time that the ground conditions through which the tunnels would be driven would not be self-supporting either for ninety per cent of the length of said tunnels or for any part thereof.

Finds that defendant did not falsely or fraudulently fail or neglect to inform and acquaint plaintiff with any facts or circumstances with reference to such ground conditions.

Finds it is not a fact that plaintiff entered into the contract with defendant solely or otherwise by reason of the mistaken belief of plaintiff as to ground conditions or by reason of any fraud of defendant.

Finds it is not a fact that plaintiff for any reason [182] was relieved of any obligation to perform said contract or was entitled to rescind the same, but on the contrary finds that there were no misrepresentations of any conditions by defendant to plaintiff and that plaintiff was not entitled to rescind the said contract but its action in refusing to perform the same was a breach thereof. [183]

And from the foregoing findings of fact the Court makes the following

CONCLUSIONS OF LAW

1. That plaintiff take nothing by its said complaint on file herein or by either count thereof.

2. That defendant and cross-complainant Joint Highway District No. 13 of the State of California, a public corporation, is entitled to judgment against plaintiff and cross-defendant Six Companies of California, a corporation, as follows: For the sum of $69,001.85, the reasonable cost of protecting and measuring the work as hereinbefore found, after the abandonment of said contract by plaintiff; for the further sum of $98,066.31, the increased reasonable cost for completing the work after the abandonment thereof by plaintiff in excess of all credits

due plaintiff for work performed by plaintiff for defendant under said contract; and for the further sum of $142,000.00 as agreed and liquidated damages at the rate of $500 per day for 284 days' delay, consisting of 20 days' delay in performance of said contract after the expiration date of said agreement and before the abandonment of the same by plaintiff, and for an additional 264 days' delay, the reasonable time for the completion of said work after the letting of new contracts by said defendant upon the default of plaintiff; said sums aggregate $309,068.16, to all of which defendant and cross-complainant is entitled to judgment against plaintiff.

3. That defendant and cross-complainant is not entitled to any agreed or liquidated damages for the period of 149 days' delay ensuing between the date of June 13, 1936 when plaintiff ceased work on said project of defendant and the date of the letting of new contracts to complete said work by defendant with other contractors. [184]

4. Said defendant and cross-complainant Joint Highway District No. 13 of the State of California, a public corporation, is entitled to judgment jointly and severally against the said plaintiff and against each of the respective Surety Company cross-defendants hereinafter named in the following percentages of said sum of $309,068.16;

Against plaintiff and the cross-defendant Hartford Accident and Indemnity Company, a Connecti-

cut corporation, in the amount of ten (10) per centum of said sum, to-wit $30,906.81;

Against plaintiff and the cross-defendant Fidelity and Deposit Company of Maryland, a Maryland corporation, in the amount of ten (10) per centum of said sum, to wit $30,906.81;

Against plaintiff and the cross-defendant The Aetna Casualty and Surety Company, a Connecticut corporation, in the amount of ten (10) per centum of said sum, to wit $30,906.81;

Against plaintiff and the cross-defendant Indemnity Insurance Company of North America, a Pennsylvania corporation, in the amount of ten (10) per centum of said sum, to wit $30,906.81;

Against plaintiff and the cross-defendant American Surety Company of New York, a New York corporation, in the amount of ten (10) per centum of said sum, to wit $30,906.81;

Against plaintiff and the cross-defendant Maryland Casualty Company, a Maryland corporation, in the amount of six and one-half (6½) per centum of said sum, to wit $20,089.43;

Against plaintiff and the cross-defendant United States Fidelity and Guaranty Company, a Maryland corporation, in the amount of six and one-half (6½) per centum of said sum, to wit $20,089.43;

Against plaintiff and the cross-defendant The Fidelity and Casualty Company of New York, a New York corporation, in the amount of five (5) per centum of said sum, to wit $15,453.40; [185]

Against plaintiff and the cross-defendant Glens Falls Indemnity Company, a New York corpora-

tion, in the amount of four and one-half (4½) per centum of said sum, to wit $13,908.06;

Against plaintiff and the cross-defendant Standard Surety and Casualty Company of New York, a New York corporation, in the amount of four (4) per centum of said sum, to wit $12,362.72;

Against plaintiff and the cross-defendant Standard Accident and Insurance Company, a Michigan corporation, in the amount of four (4) per centum of said sum, to wit $12,362.72.

Against plaintiff and the cross-defendant Massachusetts Bonding and Insurance Company, a Massachusetts corporation, in the amount of four (4) per centum of said sum, to wit $12,362.72;

Against plaintiff and the cross-defendant Continental Casualty Company, an Indiana corporation, in the amount of two and one-half (2½) per centum of said sum; to wit $7,726.70;

Against plaintiff and the cross-defendant New Amsterdam Casualty Company, a New York corporation, in the amount of two (2) per centum of said sum, to wit $6,181.36.

5. The defendant and cross-complainant is entitled to judgment against plaintiff and each of the cross-defendants hereinabove named for its costs of suit incurred herein.

Let judgment be entered accordingly.

Dated: 22nd September, 1938.

MICHAEL J. ROCHE,
Judge. [186]

Due service and receipt of a copy of the foregoing Proposed Findings and Conclusions of Law as prepared by Defendant is hereby admitted this 12th day of August, 1938.

THELEN & MARRIN
EUGENE E. TREFETHEN
DE LANCEY C. SMITH
J. PAUL ST. SURE
Attorneys for Plaintiff and Cross-Defendant Six Companies of California, a corporation.
REDMAN, ALEXANDER & BACON
Attorneys for all Cross-Defendants other than Plaintiff.

[Endorsed]: Filed Sep. 22, 1938. [187]

[Title of District Court and Cause.]

STIPULATION

It is hereby stipulated by and between the parties hereto that plaintiff and cross-defendants may have and they are hereby granted to and including the 31st day of August, 1938, within which to prepare, lodge with the Clerk of the above-entitled court and serve upon defendant and cross-complainant herein proposed findings of fact and conclusions of law and such proposed amendments and additions as may be desired by plaintiff and cross-defendants to

the proposed [188] findings of fact and conclusions of law served and filed herein by defendant and cross-complainant.

Dated August 12th, 1938.

ARCHIBALD B. TINNING,
T. P. WITTSCHEN,
Attorneys for Defendant and Cross-Complainant.
THELEN & MARRIN,
DE LANCEY C. SMITH,
EUGENE E. TREFETHEN,
J. PAUL ST. SURE,
Attorneys for Plaintiff and Cross-Defendant Six Companies of California.
REDMAN, ALEXANDER & BACON,
Attorneys for Cross-Defendants Hartford Accident and Indemnity Company, et al.

ORDER

Upon reading and filing the foregoing stipulation, and good cause appearing, it is hereby ordered that the time within which plaintiff and cross-defendants may prepare, lodge with [189] the Clerk and serve upon defendant and cross-complainant their proposed findings of fact and conclusions of law and their proposed amendments and additions to the proposed findings of facts and conclusions of law

served and filed by defendant and cross-complainant herein, be and the same is hereby extended to and including the 31st day of August, 1938.

Dated: August 15th, 1938.

MICHAEL J. ROCHE,
District Judge.

[Endorsed]: Filed Aug. 15, 1938. [190]

[Title of District Court and Cause.]

PLAINTIFF'S AND CROSS-DEFENDANTS' OBJECTIONS AND PROPOSED AMENDMENTS AND ADDITIONS TO THE FINDINGS OF FACT AND CONCLUSIONS OF LAW REQUESTED BY DEFENDANT AND CROSS-COMPLAINANT JOINT HIGHWAY DISTRICT No. 13

Plaintiff and cross-defendants hereby propose the amendments and additions hereinafter set forth to the proposed findings of fact and conclusions of law heretofore served and [193] filed by defendant and cross-complainant Joint Highway District No. 13, in the above entitled action.

Plaintiff and cross-defendants also file herewith their request for findings of fact and conclusions of law which are additional to these objections and proposed amendments and additions to the proposed findings of fact and conclusions of law proposed by defendant, which objections and proposed amendments and additions are as follows:

1.

Strike out all of the said defendant's proposed findings of fact and conclusions of law and substitute in lieu thereof the findings of fact and conclusions of law proposed by plaintiff and cross-defendants and filed herewith.

In the event that the request in paragraph number 1 is not granted, plaintiff and cross-defendants request that the following amendments and additions be made to defendant's proposed findings of fact and conclusions of law:

1.

Strike out lines 1 to 28, inclusive, on page 2 of defendant's proposed findings and substitute lines 1 to 29, inclusive, on page 2 of plaintiff's and cross-defendants' proposed findings.

2.

Strike out all of paragraph V of the proposed findings of fact and substitute in lieu thereof the following:

"Within two years prior to the filing of the complaint in this action defendant became indebted to plaintiff in the sum of $4,499,073.64 for work done, labor performed and materials furnished by plaintiff to defendant at the special instance and request of defendant. Defendant has paid to plaintiff $2,021,047.11 on account of said indebtedness and no more and there is now due, owing and unpaid from defendant to plaintiff [194] on account thereof the

sum of $2,478,026.53, plus interest thereon at the rate of 7% per annum from June 13, 1936 to date of judgment."

3.

Strike out "4th" in paragraph VII, page 4, line 18, and substitute "14th" in lieu thereof.

4.

Insert in paragraph VIII, page 5, line 18, between the word "month" and the word "from", the words "except the months of May and June 1936."

5.

Strike out the words "abandoned said work and" in the third line of paragraph IX on page 5.

Strike out the words "abandonment and attempted" in the fifth line of paragraph IX on page 5.

Insert the words "of said contract" after the word "rescission" in line 1 on page 6.

6.

Strike out the words "and that on said date said defendant wrongfully abandoned the said work and contract between plaintiff and defendant" appearing in the fourth, fifth and sixth lines of paragraph XI and substitute in lieu thereof the following: "and plaintiff was justified in so refusing to proceed."

7.

Insert after the word "contract" in paragraph XII, line 23, page 9, the following: "unless ex-

tended in accordance with the provisions of the contract".

Strike out the word and figures "May 24, 1936" in paragraph XII, subparagraph (1), line 27, page 9, and substitute in lieu thereof the word and figures "June 3, 1936." [195]

8.

Strike out all of paragraph XIII, commencing on page 23, and substitute in lieu thereof plaintiff's and cross-defendants' proposed findings of fact numbers 69 to 73, inclusive.

Add to said paragraph XIII the following:

"When the district engineer of defendant signed said estimate for May, 1936, he made his determination and decision that said amount of $3,500.00 should be deducted from the progress payment due plaintiff for work done in May, 1936, and the delivery of said estimate to plaintiff was notice to it of such determination and decision. Said engineer already having determined and decided the matter, plaintiff was under no duty or obligation, under said contract, or otherwise, to make any further request or demand of said engineer for its determination."

9.

Strike out all of paragraph XIV, commencing on page 25.

In lieu of subparagraph (1) of paragraph XIV substitute the following:

"Defendant withheld said sum of $3,500.00 from the progress payment due plaintiff for work done

in May, 1936, after the determination of the district engineer that it should be withheld. Said determination of said engineer was capricious, arbitrary and wrongful and the action of defendant in making said deduction was a material breach of said contract entitling plaintiff to rescind the same."

In lieu of subparagraphs (2), (3), (4) and (5) of paragraph XIV substitute plaintiff's and cross-defendants' proposed findings of fact numbers 29 to 68, inclusive, filed herewith.

In lieu of subparagraph (6) of paragraph XIV substitute the following:

"With reference to the right of rescission by plaintiff [196] because the ground conditions encountered in driving the tunnels differed from those represented by defendant to plaintiff before said contract was executed, the Court finds that said ground conditions actually encountered did differ materially and radically from those represented by defendant to plaintiff and that because of such difference in ground conditions the cost, difficulty and time required for constructing said tunnels was greatly increased over what it would have been if said ground conditions had been as represented. While plaintiff knew, as early as January 1, 1935, that the ground encountered in driving the first 92 feet of the south tunnel and 110 feet of the north tunnel had been much worse than represented by defendant, it had no knowledge, or means of knowing, that the remainder of the ground through which the tunnels would be driven would be different from

that represented by defendant and plaintiff did not have, and could not have acquired, such knowledge until the ground was actually excavated. In April of 1935, plaintiff complained to said district engineer of said ground conditions and thereafter on several occasions plaintiff complained both orally and in writing to said district engineer and to the Board of Directors of defendant of the difference in said ground conditions."

In lieu of subparagraph (7) of paragraph XIV substitute paragraph number 74 of plaintiff's and cross-defendants' proposed findings of fact filed herewith.

In lieu of subparagraph (8) of paragraph XIV substitute the following:

"On frequent occasions plaintiff discussed with the district engineer of defendant all of the matters set forth in said notice of rescission, excepting said deduction of $3,500.00 from the progress payment due plaintiff for work performed in May, 1936, and said Engineer was at all times thoroughly [197] familiar with them and the controversy between the parties respecting them. The matter of the deduction by defendant of said amount of $3,500.00 from the progress payment due plaintiff for work performed in May, 1936, was submitted to and decided, arbitrarily, capriciously and fraudulently by said engineer against plaintiff when said engineer signed and certified said estimate for the value of the work done during that month. The right of plaintiff to an extension of time was submitted to and decided

arbitrarily, capriciously and fraudulently by said engineer against plaintiff and plaintiff was notified in writing by defendant of the decision of said engineer.

"The obligation of defendant to furnish points to line and grade was not a matter requiring submission to said engineer but was imposed by the plain and unambiguous terms of the contract which could not be changed by any construction by said engineer. Nevertheless, said engineer considered and purported to decide, that defendant did not have such obligation and attempted to change and modify the terms of the contract so as to relieve defendant of such obligation.

"The controversies over misrepresentation by defendant of ground conditions amounting to fraud and over mutual mistake as to ground conditions and mutual mistake of facts in entering into said contract were matters which said engineer had no right, under said contract, or otherwise, to decide and over which he had no jurisdiction and plaintiff had no obligation or duty to submit said matters to said engineer."

In lieu of subparagraph (9) of paragraph XIV substitute the following:

"Plaintiff did not, by laches, delay or otherwise, waive its rights to rescind said contract.

"Immediately on the failure of defendant to make the [198] progress payment due plaintiff for work done in May, 1936, plaintiff, with promptness and due diligence, rescinded said contract.

"The furnishing by plaintiff of lines and grades for the construction of a part of said tunnels did not constitute a waiver by plaintiff of the obligation of defendant to furnish lines and grades for the remaining work to be done in constructing said tunnels, or of plaintiff's right to rescind said contract for the failure and refusal of defendant to perform said obligation and agreement on its part.

"Plaintiff had the right to rescind said contract on all of the grounds stated in its notice of rescission and rescinded the same with promptness and diligence after the right to rescind arose."

10.

Strike out paragraph XV, page 29, and substitute in lieu thereof the following:

"The additional work done by plaintiff in constructing said tunnels over that described in the contract was not of a kind or character which said contract required the district engineer to authorize in writing before plaintiff proceeded therewith. All of the work of constructing said tunnels was so radically different from and so much more costly and difficult to perform than that described in the contract that plaintiff was not obligated to perform the same for the compensation stated in the contract.

"Plaintiff notified said defendant in August, 1935, in writing, of the radically different nature and character of said work, of its objection to performing same and that it would hold defendant re-

sponsible for the additional cost incurred in constructing the tunnels." [199]

11.

Strike out the date "4th" in paragraph XVIII, page 30, line 15, and substitute "14th" in lieu thereof.

12.

Strike out the words "included all work which was to be done in connection with said project, and no other contract with plaintiff was ever let therefor nor for any part thereof" in paragraph XIX, commencing in line 31, page 30, and ending in line 2, page 31, and substitute in lieu thereof the following: "was the only contract in writing let by defendant to plaintiff."

Strike out the words "work was abandoned" in paragraph XIX, page 31, line 3, and substitute "contract was rescinded" in lieu thereof.

13.

Strike out paragraph XX, page 31, and substitute in lieu thereof the following:

"Pursuant to said contract defendant from time to time, until the progress payment became due and payable for work done under said contract in May, 1936, paid plaintiff the monthly progress payments which became due and payable under said contract. On June 10, 1936, defendant delivered to plaintiff a progress payment for work done during May, 1936, from which defendant had wrongfully deducted the

amount of $3,500.00. Plaintiff thereupon rescinded said contract and has not, since June 13, 1936, performed any work thereunder. Said deduction of $3,500.00 from said progress payment was a material breach of said contract by defendant which entitled plaintiff to rescind the same."

14.

Strike out paragraph XXI, page 31, and substitute in lieu thereof the following:

"Upon rescission of said contract by plaintiff, [200] defendant became liable to pay to plaintiff the reasonable value of the work and labor done and materials furnished by plaintiff to defendant while engaged in performing work under said contract plus a reasonable profit equal to 17½% thereof, less the amounts theretofore paid by defendant to plaintiff."

15.

In paragraph XXII, page 31, line 29, strike out the word "purported."

16.

Add after the word "cross-complaint" in paragraph XXV, page 33, line 19, the words "except Fireman's Fund Indemnity Company and Pacific Indemnity Company."

Add after the word "States" in paragraph XXV, page 33, line 21, the words "that at all times and dates mentioned herein both the Firemen's Fund Indemnity Company and the Pacific Indemnity Company were corporations organized and existing

under the laws of the State of California and citizens of that State. that at all times subsequent to the filing of said cross-complaint and until June 1, 1938, said Fireman's Fund Indemnity Company and said Pacific Indemnity Company were parties defendant to said cross-complaint; that on June 1, 1938, on motion of defendant and over the objection of plaintiff and cross-defendants the said cross-complaint was dismissed as to said corporations."

17.

Strike out the date "4th" in paragraph XXVI, page 33, line 26, and substitute therefor "14th".

18.

Strike out the word "abandoned" in paragraph XXVIII, page 35, line 5, and substitute therefor the word "rescinded." [201]

19.

Strike out the words "abandonment of said work" in paragraph XXIX, page 35, line 10, and substitute therefor the words "rescission of said contract."

20.

Add to paragraph XXX, page 35, the following: "Plaintiff and cross-defendants were justified in so refusing."

21.

Strike out all of paragraph XXXI, commencing on page 35.

22.

Strike out the words "said default of plaintiff," in paragraph XXXII, page 37, line 13, and substitute in lieu thereof the word and figures "June 13, 1936."

Strike out the words "less liquidated damages of $10,000.00 retained by defendant, the net amount being $483,259.16" in paragraph XXXII, page 37, lines 25 and 26.

Strike out all of the last two sentences of paragraph XXXII, commencing with the word "Said" on page 37, line 29, and ending with the word "plaintiff" on page 38, line 8.

23.

Strike out all of paragraph XXXIII, commencing on page 38, and paragraph XXXIV, page 39, and substitute in lieu thereof the following:

"Under the provisions of said contract plaintiff was entitled to 720 calendar days from and after June 14, 1934, plus the number of days it was unavoidably delayed in performing said work, which amounted to an additional 498 days, within which to perform said work. Plaintiff was not required to complete said work under said contract until a date after January 3, 1937, at which time plaintiff would have completed all of the work under said contract." [202]

24.

Strike out all of paragraph XXXV, commencing on page 39, and all of paragraph XXXVI, com-

mencing on page 41, and substitute in lieu thereof the following:

"Defendant is not entitled to recover from cross-defendants any damages for delay in completing the work under said contract because defendant breached the same in a material respect entitling plaintiff to, and plaintiff did, rescind the same."

"Furthermore, even had defendant not breached said contract and even if plaintiff had abandoned same, defendant would not be entitled to recover liquidated damages for delay at the rate of $500.00 per day under said contract because any damage which defendant might have suffered from delay in performing said work is easily capable of exact ascertainment as to kind and amount. Defendant has suffered no actual damages resulting from any delay in the completion of said work."

25.

Strike out the last sentence of paragraph XXXVII, page 42, lines 7 to 12, inclusive, and substitute in lieu thereof the following:

"At the time of filing the cross-complaint said defendant and cross-complainant did not have a cause of action against the plaintiff and cross-defendants, or any of them, and said cross-complaint was prematurely filed.

"Said contract provides, in paragraph 5 thereof, as follows:

> '5. That the second party further agrees that if the work to be done under this contract and agreement shall be abandoned, or if this con-

tract shall be assigned by the second party, or if at any time the District Engineer shall be of the opinion, and shall so certify in writing to the said first party that the said work or any part thereof is unnecessarily or unreasonably delayed, or that the said second party is wilfully violating any of the conditions or covenants of this contract, or is executing this [203] contract in bad faith, the said first party shall have the power to notify the said second party to discontinue all work or any part thereof under this contract, and thereupon the said second party shall cease to continue said work or such part thereof as said first party may designate, and the said first party shall thereupon have the power to place such and so many persons, and to obtain by contract, purchase or hire, such animals, carts, wagons, implements, tools, material or materials, by contract or otherwise, as said first party may deem advisable, to work at and be used to complete the work herein described, or such part thereof as the agent authorized to superintend the same may deem necessary, and to use such material as they may find upon the line of said work and to charge the expense of such labor and material, animals, carts, wagons, implements and tools to the second party, and the expense so charged shall be deducted and paid by the first party out of such moneys as may be either due or may at any time thereafter become due to

the said second party under and by virtue of this contract or any part thereof.

'In case such expense is less than the sum which would have been payable under this contract, if the same had been completed by the said second party, the said second party shall be entitled to receive the difference, and in case such expense shall exceed the last said amount, then the said second party or its bondsmen shall pay the amount of such excess to the first party on notice from the said first party of the excess so due.'

"Even if plaintiff had abandoned said contract, (which the Court finds it did not do) defendant has never complied with said provision of said contract, or notified cross-defendants, or any of them, of the excess cost, if any, of completing said project, over the contract price therefor. Compliance with said provision of said contract is a condition precedent to the commencement of any action by cross-complainant against cross-defendants and as such condition has never been performed by cross-complainant, the cross-complaint should be dismissed."

26.

Strike out paragraph XXXVIII, page 42, and substitute in lieu thereof the following:

"After rescission of said contract by plaintiff, defendant did not complete the work in the manner in which said contract provided that it should be completed in case of abandonment by plaintiff,

which was to complete it by its [204] own forces, but defendant completed the work by entering into contracts with others to perform the same, which was a breach of the terms of said contract and released cross-defendants and all of them of all liability and obligation to cross-complainant, if any they ever had (and the Court finds that they had none) to pay any excess in the cost of completing said work over the prices stated in said contract for completing same."

27.

Strike out all of paragraphs XXXIX and XL, page 43, paragraphs XLI, XLII, XLIII, XLIV, page 44, paragraph XLV, page 45, paragraph XLVI, commencing on page 45, and paragraph XLVII, page 46, and substitute in lieu thereof paragraphs numbers 5 to 28, inclusive, of plaintiff's and cross-defendants' proposed findings of fact filed herewith.

28.

Strike out all of paragraph XLVIII, page 47, and substitute in lieu thereof paragraph number 74 of plaintiff's and cross-defendants' proposed findings of fact filed herewith.

29.

Strike out all of paragraph XLIX, commencing on page 47, and paragraph L, commencing on page 50.

30.

Add to defendants' proposed findings of fact paragraphs numbers 75 to 78, inclusive, of plain-

tiff's and cross-defendants' proposed findings of fact.

31.

Strike out all of defendant's proposed conclusions of law and substitute in lieu thereof the conclusions of law proposed by plaintiff and cross-defendants and filed herewith. [205]

It is respectfully requested that the foregoing amendments to defendant and cross-complainant's requested findings of fact and conclusions of law on file herein be made and allowed by the Court.

Dated: September 14, 1938.

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IN THE UNITED STATES DISTRICT COURT OF THE NORTHERN DISTRICT OF CALIFORNIA, SOUTHERN DIVISION

SIX COMPANIES OF CALIFORNIA, a corporation,

Plaintiff and Cross-Defendant,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Defendant and Cross-Complainant,

and

HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND

DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Cross-Defendants.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

[209]

The above-entitled cause came on regularly for trial before the above-entitled court, Honorable Michael J. Roche, Judge presiding, without a jury, a jury having been expressly waived by written stipulation of all the parties hereto heretofore filed in the above-entitled court and cause. Said trial

began on the 12th day of April, 1938; plaintiff and cross-defendant SIX COMPANIES OF CALIFORNIA appearing by its counsel, Messrs. Thelen & Marrin, DeLancey C. Smith, Eugene E. Trefethen and J. Paul St. Sure; defendant and cross-complainant, JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA, appearing by its counsel, Archibald B. Tinning, Esq., and T. P. Wittschen, Esq.; and the cross-defendant SURETY COMPANIES above named appearing by their counsel Messrs. Redman, Alexander & Bacon.

Upon motion of the defendant and cross-complainant, made after the beginning of the trial on the issues made by the cross-complaint and the answers thereto and on the 1st day of June, 1938, the cause of action stated in the cross-complaint of defendant and cross-complainant Joint Highway District No. 13 of the State of California was dismissed as to cross-defendants FIREMAN'S FUND INDEMNITY COMPANY, a California corporation, and PACIFIC INDEMNITY COMPANY, a California corporation.

The dismissal was made over the due and timely objection of plaintiff and cross-defendants.

The court proceeded with the trial of said cause from day to day until concluded, and testimony and exhibits were introduced on behalf of the parties to said action; and now the court being fully advised makes and adopts the following Findings of Fact and Conclusions of Law:

FINDINGS OF FACT

1.

Plaintiff is a corporation duly organized and existing [210] under and by virtue of the laws of the State of Nevada and is and at all times herein mentioned has been, a citizen and resident of the State of Nevada and at all times herein mentioned has been and now is, a duly licensed contractor under the laws of the State of California.

2.

Defendant is a public corporation duly organized and existing under and by virtue of the laws of the State of California and at all times herein mentioned has been and now is a citizen and resident of the State of California.

3.

Each of the cross-defendants, hereinafter mentioned, at all the dates and times herein mentioned and at the time of the filing of said cross-complaint, was and is now a corporation duly incorporated, organized and existing under and by virtue of the laws of one of the several States of the Union as hereinafter in this paragraph respectively designated for each of said respective cross-defendants:

(a) Hartford Accident and Indemnity Company, a Connecticut corporation;

(b) Fidelity and Deposit Company of Maryland, a Maryland corporation.

(c) The Aetna Casualty and Surety Company, a Connecticut corporation;

(d) Indemnity Insurance Company of North America, a Pennsylvania corporation;

(e) American Surety Company of New York, a New York corporation;

(f) Maryland Casualty Company, a Maryland corporation;

(g) United States Fidelity and Guaranty Company, a Maryland corporation; [211]

(h) The Fidelity and Casualty Company of New York, a New York corporation;

(i) Glens Falls Indemnity Company, a New York corporation.

(j) Standard Surety and Casualty Company of New York, a New York corporation;

(k) Standard Accident Insurance Company, a Michigan corporation;

(l) Massachusetts Bonding and Insurance Company, a Massachusetts corporation;

(m) Continental Casualty Company, an Indiana corporation;

(n) New Amsterdam Casualty Company, a New York corporation.

The Pacific Indemnity Company, a California corporation, and the Fireman's Fund Indemnity Company, a California corporation, were parties cross-defendant to the cross-complaint when the trial commenced and until June 1, 1938, when they were dismissed over the objection of plaintiff and cross-defendants.

4.

This action is one of a civil nature between citizens of different States and the amount in contro-

versy exceeds the sum of $3,000.00 exclusive of interest and costs.

5.

On June 14, 1934, defendant executed a contract in writing with plaintiff which was dated June 4, 1934, providing for the construction by plaintiff for defendant of a project consisting of a highway and two tunnels and appurtenant structures. The work provided for in the contract began at Keith Avenue and Broadway Street, in the City of Oakland, Alameda County, California, from which point highway work and structures, such as overhead crossings, culverts, and similar [212] structures were to be constructed for a distance of about two and one-half miles in a northeasterly direction, at which point the highway entered two tunnels, one for east bound traffic and one for west bound traffic, the work ending just beyond the easterly ends of the tunnels which were each approximately 2,910 feet in length. The easterly end of the work was in Contra Costa County, California, the boundary line between Alameda County and Contra Costa County intersecting the tunnels. The east bound tunnel is also known as the "up grade" or "south" tunnel; and the west bound tunnel is also known as the "down grade" or "north" tunnel. At each end of the tunnels large portal buildings to house ventilating machinery and other equipment were included in the work to be done under the contract. The tunnels were to be constructed on a grade of approximately 4%, rising from the westerly to the easterly ends.

6.

Prior to executing the contract defendant duly complied with all the provisions of the laws of the State of California relating to its formation and the execution by it of contracts for construction work and said contract was duly and regularly entered into in full compliance with the laws of that State.

7.

Said contract was entered into by plaintiff and defendant after defendant had published a call for bids on May 7, 1934, inviting bids to be submitted on May 22, 1934, for the contract for constructing said project. Plaintiff, in response to this invitation for bids, submitted its bid for said contract on May 22, 1934. The bid submitted by plaintiff was the lowest and best bid for said contract and plaintiff was thereafter awarded said contract by defendant.

The call for bids stated that bidders might secure [213] a complete copy of the plans and specifications for the work at the office of the district engineer of defendant.

Prior to submitting its bid plaintiff was furnished by defendant with a copy of the plans and specifications referred to in the call for bids. Said specifications stated, among other things, that a report on the geological structure of the ground through which the tunnels would pass was on file in the office of the district engineer and was available for inspection by prospective bidders.

Prior to advertising for bids for the contract for constructing its project defendant had caused to be

prepared and filed in its office a geological report stating the character, nature and condition of the ground through which the tunnels to be constructed under said contract would be driven. Said report was the one referred to in said specifications and prior to the submission of its bid plaintiff was furnished by defendant with a copy of that portion of said report stating the character, nature and condition of the ground through which said tunnels would be driven.

8.

Said plans, specifications and geological report referred to in paragraph 7 were so furnished by defendant to plaintiff prior to the submission by plaintiff to defendant of said bid and prior to the parties entering into said contract, for the purpose of inducing plaintiff to submit to defendant a bid for said contract and of inducing plaintiff to enter into said contract and for the further purpose of informing plaintiff as to the character and nature of the ground through which said tunnels would be constructed and for the purpose of causing plaintiff to believe that, for most of the length of both of said tunnels, the ground through which they would be constructed would be self-supporting and for the [214] purpose of inducing plaintiff to submit a lower bid than it would have submitted if it had known the actual condition of said ground.

9.

Plaintiff computed its costs, the amount of its bid and the time which would be required to perform

the work under said contract upon the information contained in said plans, specifications and geological report and the same were furnished by defendant to plaintiff for the purpose of causing plaintiff to do so.

10.

Said geological report stated that the ground through which the tunnels would be driven would be self-supporting for most of the length of the tunnels. It concluded with the following statement:

"In a general way the rocks and rock structures that would be encountered in the proposed tunnel are favorable from the engineering standpoint. The strata mostly dip at high angles and are intersected by the tunnel at a high angle to their trend. Such a condition restricts the width of belts that may show local weakness or much water, and presents the strongest arrangement of the type of strata involved, and the easiest to deal with in tunneling.

"Throughout the main belt of cherts, the rocks may be expected to be entirely self-supporting indefinitely; in the fault belt of cherts and in the Orindan, with proper care in driving and handling, the rocks should stand well and be self-supporting except possibly along certain shear zones which may require local reenforcement to withstand local pressure (not general weight). These statements do not refer to any measures that may appropriately be taken to prevent the detachment or falling of

fragments or blocks from the surfaces exposed by the tunnel, but to general support of the mass of rock in the sides and roof of the tunnel.

"Near the portals the rocks will probably be found weak and will require positive support to prevent movement or caving."

The term "self-supporting" as used in said geological report is a technical term and as customarily used in connection with the construction of tunnels, and as used in said geological [215] report, means that said tunnels could be excavated and lined without the necessity of artificially supporting the ground through which they were to be driven and that said ground would not require support between the time of the excavation of said tunnels and the time of the installation therein of the permanent concrete lining provided for in the specifications.

11.

Said specifications so furnished by defendant to plaintiff contained the following provisions, among others, to-wit:

"(e) Timbering.—The term 'Timbering' as used herein shall include all wooden pieces or structures used to support the earth or rock adjacent to any excavation. . . .

"It is the general intent of these specifications that all timbering shall be removed from the excavation before concrete is placed. Should conditions arise where, in the opinion of the District Engineer, it is impracticable to remove

certain timbers or structures, such timbering, upon the written consent of the District Engineer, may be permitted to remain, subject, however, to the provisions herein contained in respect to clearances outside of the concrete lining. Timbers allowed to remain in place shall in no case project into the neat lines of the concrete structure, and, in the event that it is apparent, during the process of excavation and timbering, that the safety of the excavation will require timbering to remain in place, the Contractor shall enlarge the excavated section to the extent necessary to set the timbers outside of future concrete lines; timbers found to project within the concrete lines shall be removed and reset before concreting. Permission to allow timbers to remain will not be granted for any other reason than to secure the safety of the structure.

"Where timber is allowed to remain it shall be keyed or wedged firmly against the adjacent rock or earth, and shall be securely fastened, spiked or bolted so that no movement, shifting or settlement shall occur. . . .

"Timbering shall be placed in such a manner as to be readily removed, without endangering the safety of the excavation or causing weakness or excessive stresses in adjacent timber sets or concrete structures, and any damage which may occur shall be remedied by the Contractor at his own expense, including the removal and replacement of any concrete which

has, in the judgment of [216] the District Engineer, been damaged or subjected to excessive loads on account of such operations.

"Lagging behind timber sets shall be restricted to the least extent consistent with safety, and, if, in any case, permitted by the District Engineer to remain permanently in place, shall be so spaced as to permit the unrestricted flow of concrete through the lagging to fill any spaces between the lagging and the excavated surfaces."

(Section 32, subdivision 5 (e).)

"Types of Tunnel Section.—Two typical tunnel sections are shown on the plans. The District Engineer shall determine which section shall be used in any specific location in order to meet varying conditions which may be encountered. In general, it is expected that the Type "A" section will be used throughout the major length of the tunnels, but if conditions arise which, in the judgment of the District Engineer, require the use of Type "B" section, the Contractor shall make such modifications in construction as may be necessary."

(Section 32, subdivision 5 (g).)

". . . Where timber is employed for tunnel timbering it shall be removed before any concrete is placed, and any spaces outside the neat lines of the concrete structure caused by such removal shall be filled with concrete as above

provided. In the event that it is found impracticable, in the opinion of the District Engineer, to remove timbering or portions thereof, such timbering may be allowed to remain permanently in place, but in no case shall such timber so remaining be allowed to project into the neat lines of the concrete structure. Where timber is permitted to remain, all spaces outside of the neat lines of the concrete structure shall be filled with concrete mixed in the same proportions and placed at the same time as the concrete in the neat structure. . . ."

(Section 32, subdivision 5 (b).)

The portions of the specifications last hereinabove quoted placed the obligation upon the contractor to remove, prior to installing the concrete lining in the tunnels, any timber theretofore placed therein. These clauses in the specifications implied that the tunnels would be constructed through self-supporting ground, and were improper clauses to place in specifications for the construction of tunnels in ground of the kind actually encountered in the construction of the tunnels here [217] involved. Said clauses were likewise a representation to the bidder and the contractor that the ground through which the tunnels would pass was, and would be found to be, self-supporting, and ground which would stand without artificial support until the installation of the permanent concrete lining therein.

12.

When tunnels are constructed through ground that is not self-supporting, timber cannot practicably be removed before the concrete lining is placed and said provisions of said specifications constituted representations by defendant to plaintiff that the ground through which said tunnels would be constructed would be for the most part self-supporting and confirmed the statements in said geological report as to the self-supporting character of the gruond through which said tunnels would be driven.

13.

The specifications contained no provision describing or requiring any permanent timbering nor did the plans contain any drawing or description of the manner of, or lay-out for, installing any timbering. It is customary to include a plan, or lay-out, for timbering in the plans for a tunnel when installation of permanent timber supports is expected to be necessary or proper.

14.

The absence of any such plan, or lay-out, in these plans and specifications justified plaintiff in believing that defendant believed that no permanent timber supports for the ground would be necessary and further confirmed the statements in the geological report that the ground through which the tunnels were to be constructed would be, for the most part, self-supporting. [218]

15.

Defendant also directed the attention of plaintiff, prior to the submission of its bid, to a test bore or drift at the site of the proposed tunnels and immediately to the west thereof and on the line of one of the tunnels, which drift was approximately 125 feet long. This test drift ended in firm self-supporting rock. Defendant also directed the attention of plaintiff to certain test pits which defendant had caused to be dug over and along the line of the tunnels and to ground exposures in the neighborhood of the tunnels to be constructed.

16.

Plaintiff's attention was directed to said test bore or drift for the purpose of informing plaintiff as to the character of the ground to be encountered in excavating said tunnels. Plaintiff relied upon the information it derived from its inspection of the test drift in formulating and submitting its bid and in making its estimate of the cost of construction of the tunnels and in planning its methods of doing the work in the tunnels.

None of the ground encountered by plaintiff in excavating the tunnels was of a self-supporting kind or character as was the rock at the end of the test drift.

17.

Plaintiff was furnished by defendant, prior to submitting its bid, with an estimate, made by defendant's engineer and adopted by the defendant,

of the cost of constructing said tunnels, which estimated cost was $2,010,800.00 and which was approximately the cost estimated by plaintiff for constructing said tunnels in determining the amount of its bid for said contract.

18.

Defendant's engineer, in making said estimate of the [219] cost of constructing said tunnels, did so in the belief that the ground through which they would be constructed would be self-supporting and of the character described in the geological report and specifications. Had said engineer, at the time he made said estimate, known the actual condition of said ground, his estimate of the cost of constructing said tunnels would have been much greater.

19.

Plaintiff, prior to submitting its bid, employed engineers and men with long experience in constructing tunnels, to make an investigation of the proposed project of defendant and to prepare an estimate of the cost of constructing said project as a basis for a bid to be submitted by plaintiff to defendant. Said persons so employed by plaintiff made such investigation, read and examined said specifications and geological report, and examined said plans and estimate of costs furnished to plaintiff by defendant. Said persons, in making said estimate of costs, believed, in good faith, said statements in said geological report that the ground through which said tunnels were to be driven would be self-sup-

porting and the statements in said specifications confirmatory thereof that the timber, if any was required, could be removed before the concrete lining was placed in said tunnels and relied upon the truth and accuracy of said statements in making an estimate of the cost of doing said work and of the time which would be required to do the same. Said persons also, in making said estimate, relied upon the design of said tunnels, as disclosed by said plans, which also confirmed the statement in the geological report that said ground would be self-supporting.

20.

Because of said statements in said geological report and said specifications with respect to timbering and the [220] removal thereof, the design of said tunnels as disclosed by said plans, the estimate of costs of constructing said tunnels prepared by defendant's engineer and the character of ground disclosed by the test drift and test pits shown to plaintiff by defendant, plaintiff was led to and did in fact believe, at and prior to the time of the submission by it to defendant of its bid for the contract and at and prior to entering into the contract, that the ground to be encountered in driving and excavating said tunnels would be of the character described in the geological report and would be self-supporting and plaintiff's bid for the contract was prepared and delivered by it to defendant and the contract was entered into by plaintiff, in said belief and in full reliance on said information furnished

to it by defendant. Plaintiff would not have submitted said bid nor entered into said contract except for its belief that said statements and information were true.

21.

Prior to the submission of its bid said persons employed by plaintiff visited the site of the proposed tunnels on several occasions and made a careful inspection of the test drift and test pits exhibited to them by defendant and also made a careful examination in the vicinity of the site of the tunnels of rock exposures of the character described in the geological report furnished by defendant. Nothing was disclosed by such examinations which indicated that said statements in said geological report and said specifications were not true and correct. Insufficient time was provided between the publication of notice to bidders and the date of receiving bids, for plaintiff, or any bidder, to make test borings along the line of the tunnels or to have a geological study made of the ground conditions through which same would be driven in order to verify the statements made in the geological report and [221] specifications as to the self-supporting character of the ground and the examination and investigation made by plaintiff's representatives of conditions at the site of the work was as complete and full an examination as reasonably could have been made within the time available. It is not customary for bidders on tunnel projects to make borings or geological investigations of ground

through which the tunnels are to be constructed. Plaintiff and its employees and representatives were entitled to, and did, rely on said information furnished to them by defendant in making their estimate of the cost of constructing said tunnels and the time which would be required to construct the same. Plaintiff did not know, at or prior to the time it entered into said contract, the actual nature, character and condition of the ground through which said tunnels were to be constructed, or that it was not self-supporting.

22.

In making its estimate of the cost of constructing said tunnels and the time which would be required to construct the same, plaintiff planned and developed a definite method of procedure which it proposed to follow, which plan of procedure was based on the statements in the geological report as to the character of ground which would be encountered, the provisions of the plans and specifications confirmatory thereof and its examination of ground conditions at the site which also confirmed the conclusions stated in said geological report.

23.

Because of the representations and statements so contained in said geological report, plans and specifications concerning the ground conditions which would be encountered in constructing said tunnels, plaintiff, in making its bid and entering into said contract planned to do and perform the work in the manner hereinafter set forth. [222]

24.

Plaintiff planned to excavate the west portals for a distance of forty feet by the circumferential drift method, that is by constructing a series of small drifts around the perimeter of the tunnel, placing the timber and thereafter removing the core. This is the slowest and most expensive method of excavating tunnels and is used only when the ground is not self-supporting. Plaintiff adopted this plan for this section because the geological report stated that it would require support.

In driving through the sandstone formation, immediately east of the west portal section, which said geological report stated would be the first bedrock formation encountered and which would continue for about 700 feet, plaintiff planned to use the wall plate system. This system consists of excavating drifts on each side of the tunnel at about the bottom of the arch of the roof and placing horizontal timbers therein, called wall plates, which are supported by the bottom of the drifts at one end and, where they protrude from the drifts, by vertical timbers inserted under them which rest on blocks on the floor of the tunnel. After the wall plates are in position a ring of material is excavated along the perimeter of the tunnel across the roof from one wall plate to another and timbers are placed which rest on the wall plates and support the roof of the tunnel. The core is then removed.

This system is customarily used where the ground requires some support although not sufficiently un-

stable to require the use of the circumferential drift method and was adopted by plaintiff because plaintiff believed, from the information and data furnished to it by defendant, that the sandstone formation, while not entirely self-supporting, would be ground permitting use of this method. [223]

Plaintiff planned, in driving through the chert and orindan, which, according to the geological report, began at the easterly end of the sandstone formation and extended for about 2,000 feet in each tunnel to the easterly end of each of the tunnels, to use what is known as the "full face" method. Under this method no drifts are driven in advance, but the full face of the tunnel is blasted loose and the material is then removed by power shovels and electrically operated cars. This is the fastest and most economical method of excavating tunnels and is customarily employed where practicable. It can only be employed, however, when the ground through which the tunnels are being driven is self-supporting. Plaintiff planned, after excavating a section of the tunnel by this method, to timber lightly, principally to protect workmen from falling rocks, but did not plan to install timbers in those sections for the support of general weight. Plaintiff planned to use this method of excavation in these sections because of the statement in said geological report that the ground would be self-supporting.

Plaintiff planned to leave the timber in place for a distance of 40 feet easterly from the west portal and in the sandstone section and place the concrete lining against it.

Plaintiff planned to remove the timber from the chert and orindan sections before placing the concrete lining.

Plaintiff planned to excavate the tunnels at an average rate of 10 feet per day each and to complete their construction by December 1, 1935.

This plan of excavating and lining the tunnels was adopted by plaintiff prior to submission of its bid and formed the basis upon which it estimated the cost of doing that part of the work under the contract and the time which would be required to do it. [224]

25.

The progress per day which can be made in excavating a tunnel has a very material bearing on the cost. The more feet per day that are excavated the cheaper the work is done.

26.

If the ground through which the tunnels were excavated had been of the kind and character described in the geological report, which was confirmed by the provisions of the plans and specifications, particularly those concerning timbering and the planned design, and by the test drift and pits shown to plaintiff by defendant, the plan of driving and excavating the tunnels so adopted by plaintiff would have been practicable and feasible and plaintiff could have excavated said tunnels and completed their construction, in the manner it expected to and within the time estimated by it. Plaintiff's plans

were in accordance with good practice in the construction industry in driving tunnels through ground of the character so described. In formulating said plans plaintiff relied upon and was entitled to rely upon, the statements in said geological report, plans and specifications and the information derived from the test drift and test pits exhibited to it by defendant.

27.

Said contract, plans and specifications had been prepared by defendant and the tunnels had been designed by it.

28.

The work to be done in the tunnels consisted of excavating the material through which same were to be driven, and constructing a concrete lining around the outer perimeter of the excavation, which was 2 feet in thickness at the top of the tunnels, increasing in width as same reached the foundation thereof on each side. The concrete lining was to be of the neat thickness shown on the plans without intrusion into the [225] same of any temporary supports erected for construction purposes. There was also provision for building ventilating flues within the lining. The design of the tunnels provided for a clear area between the side walls of approximately 24 feet, and a height from the level of the paved road at the bottom of the same to the top of the arch of approximately 35 feet. At about the spring line of the arch of the tunnels, or about 18 feet above the ground level, a ceiling across the same

without important structural features was designed to be built so as to leave the remaining upper space of the tunnel for a ventilation chamber, so that the traveled section of the tunnel would be about 24 feet in width by 18 feet in height. The ventilating chamber was for the purpose of receiving and discharging air for ventilation through the flues provided in the walls. The work to be done included the necessary excavation and installation of the lining, the ventilating flues, the ceiling, and a pavement slab for a roadway at the bottom of the tunnels, and all work necessary to complete the tunnels under the plans.

The contract also provided for the construction of a heavy invert section for an estimated distance of 200 feet in both tunnels at a price $75.00 higher per linear foot than for the portion constructed without such invert. The invert was intended to be used at points in the tunnels where the ground conditions were represented to be bad; and the construction of same would have added great strength to the design.

The design of the tunnels was for a long, flat arch side reaching an apex under conditions which indicated the tunnels were expected by the designer to be driven through self-supporting ground, as the design called for slight resistance at and immediately above the spring line of the tunnels to side pressures from the surrounding ground. The portion of the [226] tunnels to be built with the invert section were described in the contract as "Type B"

section, and the remainder of the tunnels were described as "Type A" section. The plaintiff was justified in concluding that only about 200 feet of ground to be encountered in constructing the tunnels would be of difficult character. The flat arch type design of the tunnels was not a design which would be adopted for difficult ground conditions, or which would be safe to construct in ground conditions which were not unusually favorable to tunnel construction.

29.

Said contract, although dated June 4, 1934, was not executed by defendant until June 14, 1934.

30.

The specifications forming a part of said contract contained the following provision:

"Section 4. Time

"(a) Commencement of Work.—The Contractor shall commence work within ten (10) days after the execution of the contract for the work by the Board of Directors and shall continue without interruption unless otherwise directed by the District. At least three (3) days before starting, the Contractor shall notify the District Engineer in writing of the date that work is to commence.

"(b) Completion of Work.—The time of completion of the entire work specified herein shall be within a period of seven hundred and twenty (720) calendar days from the date of

the execution of the contract by the Board of Directors.

"(c) Extension of Time.—The time during which the Contractor is delayed in said work by Acts of God, or by stormy or inclement weather, or by any reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the Contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof.

"(d) Damages for Delay. — The parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the contract or within such extensions of the contract time as may be allowed [227] as herein provided, it is distinctly understood and agreed that the Contractor shall pay the District as agreed and liquidated damages and not as a penalty five hundred dollars ($500.00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work, said sum being specifically agreed upon as a measure of damage to the District by reason of delay in the completion of the work; it being expressly stipulated and agreed that it would be imprac-

ticable to estimate and ascertain the actual damages sustained by the District under such circumstances; and the Contractor agrees and consents that the amount of such liquidated damages so fixed, shall be deducted and retained by the District from any money then due, or thereafter to become due, the Contractor."

Subdivision (d) of the foregoing section was contained in the specifications but was not in the contract or bond. There is no provision in the contract or bond providing for liquidated damages for delay.

31.

The date upon which the work was required to be completed, if plaintiff was entitled to no extensions of time, was June 3, 1936.

32.

Plaintiff commenced work under said contract on or before June 14, 1934, and after assembling the necessary plant and equipment started to excavate the cut which formed the approach to the west portals of the tunnels. Excavation of said cut commenced in June of 1934 and was completed about July 28, 1934.

During the excavation of this cut slides occurred, without fault of plaintiff, which increased the required excavation about 20,000 yards over the estimated amount and delayed the work for at least 7 days.

33.

Excavation at the west portal of the tunnels proper was commenced by plaintiff on August 1, 1934, and continued until August 10, 1934, when it became necessary to stop further [228] excavation in the tunnels until the portal building at the west portal could be constructed to such a point that the two operations would not interfere with each other.

Excavation was resumed in the tunnels on August 23, 1934, and carried on continuously thereafter until the drifts had been excavated for a distance of 92 feet in the south tunnel and 110 feet in the north tunnel, the excavation for this distance having been carried on by the circumferential drift system, differing, however, from that which plaintiff planned to use in that, because of the heavy, unstable ground encountered, plaintiff was required to increase the number of drifts, decrease their size and leave the core in until the concrete lining was placed. Excavation was stopped at these points in the tunnels because it was necessary that they be lined with concrete before the winter rains set in and the ground encountered thus far was so unstable that the core could not be removed so as to permit excavation to proceed while the lining was being done.

Excavation of the south tunnel drifts for a distance of 92 feet was completed October 13, 1934, and the concrete lining was completed in that portion of the south tunnel on November 5, 1934. The work was then stopped by order of defendant's engineer for

21 days, after which the core was removed which operation required 13 days.

Excavation of the north tunnel drifts commenced September 1, 1934, and they were excavated and the tunnel lined a distance of 110 feet by October 27, 1934. The work on this tunnel was then stopped by an order of defendant's engineer for 21 days, after which the core was removed which required 8 days.

The ground encountered in excavating these sections of both of these tunnels was heavy, unstable and exerted heavy [229] pressures at all times. It was partly mud, partly badly broken and shattered rock, and was nowhere self-supporting. Plaintiff excavated and lined these portions of the tunnels as expeditiously as possible. The delay beyond the estimated time for excavating and lining these portions of the tunnels was caused by the ground conditions encountered, was unavoidable and was not due to any fault of plaintiff. Said conditions caused a minimum delay of 30 days to plaintiff in the performance of the work.

34.

After plaintiff had completed excavating and lining the portions of the tunnels at the west portals described in paragraph 33 hereof, it resumed their excavation on or about December 5, 1934. It completed excavation of the core in the concrete lined portions of the tunnels and commenced further excavation on the core of the north tunnel on January 5, 1935 and on the core of the south tunnel on January 21, 1935, and thereafter proceeded with the excavation of the tunnels without cessation until

August 21, 1935. Resumption of excavation on the core beyond the concrete lining was necessarily delayed until drifts could be advanced far enough to permit of its removal. From January 21, 1935, to August 21, 1935, the core of the south tunnel was excavated a distance of 1,212 feet, having passed through the sandstone and penetrated the chert for a distance of approximately 450 feet. The core of the north tunnel had been excavated during the period from January 5, 1935, to August 20, 1935, for a distance of 958 feet likewise having passed through the sandstone and penetrated the chert for a distance of approximately 200 feet.

During this period of time plaintiff excavated on the average 4.20 feet of tunnel per day in the north tunnel and 5.69 feet per day in the south tunnel, said averages being based on excavation of full tunnel, including core.

35.

During this entire period as well as during all times [230] while engaged in the construction of these tunnels, plaintiff prosecuted the work diligently and made all progress possible under the ground conditions encountered.

36.

Plaintiff at all times had adequate and sufficient excavating equipment and tools on the work. It prosecuted the work 24 hours a day, except for one shift of six hours Sunday afternoons and except when the work was stopped by defendant's engineer or by other conditions over which plaintiff had no

control. The cessation of work for one shift on Sunday afternoons was necessary to comply with provisions of the contract concerning hours of labor. Plaintiff at all times pursued proper methods of excavation. The failure to make more progress was due solely to the character of the ground.

37.

At no place encountered in said further excavation of said tunnels, with the possible exception of one or two places extending for not more than 10 or 12 feet of the length of the tunnels, was the ground self-supporting. It was broken, treacherous, unstable and developed heavy pressures. The rock was badly shattered and the same and all of the ground required heavy timbering to support it. At no place could it be excavated by the full face method or in accordance with the plan of excavation which formed the basis of the bid of plaintiff.

Because of the character of the ground, as herein found, the timber could not be removed before the concrete lining was placed. Therefore, plaintiff, of necessity, set the timber supports outside the area where the specifications provided that the concrete lining should be placed. This made it necessary for plaintiff to excavate approximately fifteen per centum more material from the tunnels and furnish and install five times more board feet of timber than would have been required had it been able to remove the timbers before the concrete was placed, resulting in increased cost and a longer time for performing the excavation work. [231]

38.

Plaintiff planned on placing the concrete in the lining of the tunnels by the use of a pneumatic concrete gun. This was the customary and only practical method of placing such concrete at the time plaintiff and defendant entered into said contract. The method consists of forcing the concrete by compressed air into the forms.

Plaintiff used this method in placing the concrete in that portion of the tunnels described in paragraph 33.

Because of the requirements of the specifications and the interpretation placed upon them by the engineer of defendant a great amount of difficulty and delay was encountered in attempting to place the concrete lining with the pneumatic gun. Furthermore, when the forms were stripped the concrete so placed was not entirely satisfactory to defendant's engineer and plaintiff was told by defendant's engineer that it would have to devise and use some other method for placing the remainder of the concrete lining in the tunnels.

Subsequent to the execution of said contract there had been developed a machine for placing concrete known as the pumpcrete, which pumped the concrete into the forms instead of forcing it in by compressed air. This machine had been used successfully for a year or two on certain structures but was still in the experimental stage so far as placing the lining in large tunnels similar to the ones herein involved was concerned.

When the trouble developed in placing the concrete lining with the pneumatic gun, plaintiff communicated with the manufacturers of the pumpcrete with the object of securing one of these machines to place the concrete lining. Many difficulties were encountered in working out a satisfactory design and plaintiff and the manufacturers were not able to accomplish this and get the pumpcrete delivered to the work until June, 1935. In the meantime the excavation proceeded, but no concrete lining [232] was placed because plaintiff had not been able to secure delivery of this machine earlier and placing the lining by pneumatic gun method was not satisfactory to the defendant's engineer. Plaintiff used every reasonable effort to secure delivery, and did secure delivery, at the site of the work at as early a date as possible of equipment which would place said concrete lining in a manner satisfactory to defendant's engineer.

39.

During June, July and early August of 1935, the ground encountered in each tunnel developed increasingly heavy pressure and plaintiff experienced extreme difficulty in placing timbering heavy enough to hold it in place at all. The timber in that part of the tunnels which first had been excavated, which was through the sandstone, in some places had moved in shortly after the excavation at those points because of pressure of the ground at such points. No movement, however, took place at those

points except such as occurred within a few days after the timber supports were placed. On the other hand, the timber supports placed in the chert which was excavated in June, July and August, 1935, were showing movement and heavy pressure and had to be constantly repaired and replaced.

For this reason plaintiff, on August 21, 1935, stopped further excavation in the tunnels until the concrete lining could be installed in the excavated portions of the tunnels to a point approximately 200 feet from the easterly end of such excavated portions.

Plaintiff started to pour and install the concrete lining in the tunnels the first week in July of 1935, with the use of the pumpcrete and continued said pouring and installation thereafter until June 13, 1936. [233]

40.

On August 21, 1935, in certain parts of the tunnels which had been excavated at that time, the timber had been forced by the pressure of the ground into the area where the concrete lining was required by the specifications to be placed. Defendant's engineer insisted that such timber be trimmed or moved back before the lining was placed and in order to comply with his directions and the specifications, plaintiff proceeded to trim the timber in places where the intrusion was slight and to set it back in places where the intrusion was so great that it could not be trimmed sufficiently without weaken-

ing it to the point where it would faii as a support for the ground.

One of the points at which the timber had intruded so far that it had to be reset was at station 114 in the north tunnel, which was a point about 150 feet easterly from the end of the concrete lining which had been installed prior to August 21, 1935. The tunnel at this point had been excavated during February, 1935. Within a very few days after it was excavated at this point the timbers had intruded into the area in which the concrete lining was to be placed. They were braced at the time they intruded into the area of the concrete lining and in August of 1935 had shown no movement for a period of six months.

On August 28, 1935, while timbers were being reset at said station 114 in said tunnel, a cave-in occurred which completely filled the tunnel for a distance of approximately 100 feet. The resetting and retimbering operations were being carried on in a careful and workmanlike manner and in accordance with approved practice and the cave-in was not caused by any fault of plaintiff.

41.

Immediately following the cave-in the Superintendent [234] of Safety of the Industrial Accident Commission of the State of California ordered plaintiff not to do any further work without his approval and ordered that no timbers be reset or trimmed. This limited plaintiff's operations to con-

creting in those portions of the south tunnel where no trimming or resetting of timbers was required to be done.

Plaintiff proposed to defendant on September 1, 1935, that the design of the concrete lining be slightly altered so as to avoid the necessity of removing or trimming timbers. The proposed alteration was approved and authorized by said Commission, but defendant refused, on September 5, 1935, to permit it. On September 14, 1935, plaintiff notified defendant and said Commission that it would proceed to install the lining in accordance with the specifications. On September 19, 1935, the Commission ordered both plaintiff and defendant to stop all operations which involved removing or resetting timbers before concreting, and stated that some plan whereby the timbering would not be disturbed might be submitted to the Commission for approval.

42.

At a hearing held by said Commission on September 24, 1935, a plan for the modification of the concrete lining was submitted by defendant which would eliminate the necessity of trimming and removing timbers. This plan was satisfactory to the Commission.

Immediately following said hearing plaintiff proceeded as rapidly as possible to line with concrete the portions of said tunnels which had been excavated, although formal permission to alter the de-

sign of the concrete lining in accordance with said plan was not given by defendant until November 8, 1935. [235]

43.

The lining of the north tunnel was not completed to such an extent that it was possible, under conditions existing, for plaintiff to resume excavation in that tunnel until December 22, 1935, and in the south tunnel until November 26, 1935.

44.

If the ground through which the tunnels were being excavated had been of the character described in the geological report furnished by defendant to plaintiff it would not have been necessary for plaintiff to have stopped the excavation of the tunnels on August 21, 1935, until the concrete lining had been installed in the excavated portions thereof, but plaintiff could have continued with the excavation of the tunnels at the same time that it was installing the concrete lining in the portions already excavated.

Furthermore, if the ground had been as represented in said report the timbers would not have intruded into the area where the concrete lining was to be placed and it would have been unnecessary to reset or trim any timbers.

45.

The delay in proceeding with the excavation of the north tunnel from August 21, 1935, to Decem-

ber 22, 1935, a period of 123 days, and in proceeding with the excavation of the south tunnel from August 21, 1935, to November 26, 1935, a period of 97 days, was caused by reasons which unavoidably delayed plaintiff in performing the work, namely,

(a) Bad ground conditions differing from those described in the geological report and specifications;

(b) A cave-in which was not the fault of plaintiff;

(c) Delay on the part of defendant and defendant's engineer in failing and refusing to cooperate on a practical plan of proceeding with the work after the emergency resulting from the cave-in; and [236]

(d) Orders of the Industrial Accident Commission of California restricting plaintiff's operations.

Plaintiff commenced removal of the caved-in material in the north tunnel on September 15, 1935, and completed its removal on December 6, 1935. Said caved-in material was removed from said tunnel as speedily as possible.

46.

After excavation was resumed by plaintiff on said tunnels, as stated in paragraph 43 hereof, plaintiff continued to excavate each of said tunnels and line them with concrete until February 22, 1936. The ground continued to be heavy and broken and none of same was self-supporting. It required heavy permanent timbering at all places. At many

points a soft material, known as altered diabase dike, which was not mentioned in the geological report, was encountered.

47.

On February 22, 1936, at the location of one of these dikes, the north tunnel again caved in. The cave-in occurred without warning and unexpectedly at approximately station 126+50 which was a point approximately 1500 feet easterly from the westerly portal of the tunnel. Excavation of this tunnel at this point had been completed 4 or 5 days before February 22, 1936, and the tunnel had been heavily timbered at that same time.

48.

The cave-in was caused by the heavy pressure exerted by the unstable ground and the diabase dike and did not result from any fault of plaintiff.

49.

On February 22, 1936, following the cave-in, the Industrial Accident Commission of California ordered all excavation work on both tunnels stopped until plans for future [237] excavation and driving were approved by the Commission.

50.

On March 16, 1936, the Commission issued and served on the parties an order permitting resumption of excavation in the south tunnel under certain conditions which it imposed and which condi-

tions made the future excavation slower, more difficult and more expensive than would have been the case if plaintiff could have proceeded with the work as it had been proceeding prior to said cave-in. The conditions imposed also made it necessary to obtain new and additional equipment. Plaintiff obtained such equipment as soon as possible, but was unable to obtain it until March 23, 1936, on which date excavation was resumed in the south tunnel.

Removal of the caved-in material from the north tunnel and concreting of that portion of said tunnel was also permitted by said order. However, the same order prohibited further excavation in that tunnel until plans for future excavation and driving were approved by the Commission.

51.

On April 16, 1936, the Commission issued and served on the parties its order permitting resumption of excavation in the north tunnel under conditions similar to those imposed and herein found in connection with the resumption of excavation in the south tunnel and which likewise made the future excavation in the north tunnel slower, more difficult and more expensive than would have been the case if plaintiff could have proceeded with the work as it had been proceeding before the cave-in.

On April 16, 1936, plaintiff had not completed removal of the caved-in material from the north tunnel. The removal of said caved-in material was

accomplished as speedily as possible and was not completed until May 9, 1936. [238]

52.

The delay resulting from stopping the excavation in the south tunnel from February 22, 1936, to March 23, 1936, a period of 31 days, and in the north tunnel from February 22, 1936, to May 9, 1936, a period of 71 days, was caused by reasons which unavoidably delayed plaintiff in performing the work, namely,

(a) Bad ground conditions differing from those described in the geological report and specifications;

(b) The said cave-in of February 22, 1936, which was not the fault of plaintiff; and

(c) Orders of the Industrial Accident Commission of the State of California.

53.

If the ground through which the tunnels were excavated had been self-supporting, plaintiff would have excavated these tunnels a minimum average distance of 9 feet per day each with the forces and equipment which it had and used. The average progress made by plaintiff on the days it was actually engaged in excavation operations was 4-½ feet per day which was a normal and fair rate of progress in the ground actually encountered and as great a rate of progress as could have been made. The difference between a rate of progress in exca-

vating said tunnels of 4-½ feet per day and 9 feet per day was due solely to the fact that the ground was not self-supporting, which cause was entirely beyond the control of plaintiff.

54.

At the time plaintiff stopped work on June 13, 1936, it had excavated 1,843.5 feet of full tunnel in the north tunnel and 2,425.75 feet of full tunnel in the south tunnel. Because of the ground conditions which existed plaintiff necessarily consumed 237 more days in excavating that part of the tunnels excavated by it than it would have taken if the ground had been [239] self-supporting. This is in addition to the time lost as a result of cave-ins and other causes herein found.

55.

The work to be done under the contract to the west of the tunnels included construction of a modern highway which required the making of an embankment for same as well as making certain cuts and construction of certain structures. Plaintiff planned the doing of its work to construct the embankment in the early spring of 1935 and complete the highway work during the dry summer season of the same year. Stormy and inclement weather, including heavy rains greatly in excess of normal, retarded the work in the spring of 1935, and prevented plaintiff from finishing same so as to complete the paving work during the summer of 1935.

Because of this delay it became and was impossible for plaintiff to complete the embankment and paving work until the spring and summer dry season of 1936; and as a result of the stormy and inclement weather above mentioned, and of the rainfall in excess of normal expectations, plaintiff was necessarily delayed not less than 30 days in the completion of performance of the contract beyond the date fixed in same for such performance.

56.

During the progress of the work the following reasons unavoidably delayed the work for the following number of days:

1. Slides during the excavation of the approach cut to the west portal and additional excavation required in excavating that cut over the estimated amount, a minimum of 7 days.

2. Extremely difficult and unstable ground encountered in excavating the west portal sections of the tunnels, together with the difficulty of placing the concrete lining therein and orders of defendant's engineer requiring that operations be stopped for 21 days until the concrete lining set, a minimum of 30 days. [240]

3. Heavy, unstable ground making it necessary to stop excavation on August 21, 1935, the cave-in of August 28, 1935, and orders of the Industrial Accident Commission resulting therefrom, a minimum of 123 days.

4. The cave-in of February 22, 1936, and the orders of the Industrial Accident Commission resulting therefrom, a minimum of 71 days.

5. Heavy, unstable and difficult ground encountered, which was not self-supporting and which retarded the progress of the excavation while actually being performed, a minimum of 237 days.

6. Stormy and inclement weather, a minimum of 30 days.

The total of said unavoidable delays caused to plaintiff and said work is 498 days. None of said delays, except those stated in subparagraphs 1 and 6, would have occurred if the ground conditions encountered in constructing said tunnels had been as described in said geological report, as they were represented to be from the plans and specifications and as they were indicated to be in the test drift and test pits shown to plaintiff by defendant and as they appeared to be from surface indications at the site of the work. All of said reasons for delay were unavoidable and beyond the control of plaintiff and none of them was due to any fault of plaintiff.

57.

Plaintiff had scheduled the performance of all of its work under the contract, including the tunnel portions thereof, and had advised the defendant of its proposed schedule, furnishing a copy of same to defendant. Plaintiff filed its first construction schedule with the defendant in August, 1934, which showed that all tunnel work would be completed on

December 1, 1935. At the time this schedule was submitted to defendant, plaintiff was not in possession of any information, nor had it discovered any conditions, to cause it to know that it could not conform to the plans on which it estimated the work, as herein found. No comment or objection was made by defendant [241] to the schedule so submitted. In February, 1935, and after plaintiff had encountered the difficulties and troubles herein found at the west portal and in the west portal approach, it had become apparent that the schedule filed in August, 1934, could not be fulfilled, and plaintiff thereupon submitted and delivered to defendant a revised construction schedule to replace the one previously filed. This schedule showed that the contract work would be completed on May 24, 1936. This schedule also showed that concrete lining of any portion of the tunnels east of the west portal area would not begin until six months after excavation began therein. No objection or comment on this schedule was made by defendant to plaintiff; and plaintiff was justified in assuming that the schedule had been approved.

58.

After the cave-in of August, 1935, and about the first of the year 1936, plaintiff submitted and exhibited to defendant a further revised construction schedule to reflect the delays encountered since the schedule filed in February, 1935. This schedule showed a completion of the tunnels and work would

be in the month of October, 1936, or approximately 150 days after the contract time had expired. No objection was made to this schedule by defendant, nor was any statement made by defendant to plaintiff that plaintiff would be held responsible for any failure to complete within the contract time. By reason of delays encountered after the schedule last found, and resulting from the cave-in above found of February 22, 1936, the date of the completion of the project was further postponed until January 3, 1937, or a total of 224 days after May 24, 1936. January 3, 1937, was the earliest date on which plaintiff could have completed the work under the contract. [242]

59.

Both plaintiff and defendant were misled by said geological report, test drift, test pits and surface indications as to the character of the ground which would be encountered in constructing said tunnels. Defendant designed the tunnels and prepared the plans and specifications therefor on the assumption and in the belief that the tunnels would be constructed through self-supporting ground for a distance of approximately 2,000 feet in each tunnel and that the timber could be removed from the portions where the ground was believed to be self-supporting before the concrete lining was placed. It based its estimate of the cost of constructing said tunnels and its stipulation in the contract for the time of performance thereof on said belief and assumption. Plaintiff was likewise misled into the be-

lief that most of the ground through which said tunnels would be constructed would be self-supporting. Plaintiff's belief was based on the statements made in said geological report, the surface indications at the site of the work, the test drift and test pits exhibited to it by defendant, the design of the tunnels as shown on the plans adopted by defendant, the provisions in said specifications requiring the removal of timber before concrete lining was placed and all other provisions of the specifications and contents of the plans, and defendant's estimate of cost of constructing said tunnels.

60.

Both parties to the contract entered into same under a mistake of fact, namely that both of said parties believed at the time said contract was entered into, that said tunnels would be constructed, for at least 2,000 feet of the length of each thereof, through self-supporting ground, whereas the ground through which said tunnels were constructed was not self-supporting at all, except for 10 or 12 feet thereof. Said [243] mistake was material and substantial.

61.

The excavation of tunnels through ground which is not self-supporting is much more expensive and requires much more time than through ground which is self-supporting.

62.

The contract and specifications provided in the main that the excavated material, or muck, from the tunnels would be used to make fills on the highway work between the westerly end of the tunnels and the westerly end of the project; and gave the engineer of defendant power to select such material from the tunnel excavation as he felt proper for such use, and reject the balance. It was not possible for the plaintiff to determine until the highway fills were approximately completed how much material out of the total tunnel excavation would be necessary to complete the fills. No other material than tunnel excavation was provided to be used in these fills under the plans and specifications, except some cut material in making the embankment for same which would be insufficient to complete more than a small portion of such fills. There was no provision in the plans and specifications for disposition of any material from the tunnel excavation at the east end of the tunnels, and it was proper for the plaintiff to plan its procedure in construction to excavate the tunnels entirely from the west end if that could be done within the time limits of the contract.

The time limits as fixed in the contract, when taken together with the representations as to the ground conditions to be encountered in the tunnel as hereinbefore found, confirmed the representation of the geological report and the specifications that

the tunnels would be driven through self-supporting ground; and taken with the provisions providing for the disposition of material at the west end thereof, justified the [244] plaintiff in planning to excavate the tunnels entirely from the west end to the easterly end. There was no provision for disposition of material from the tunnels at the east end, and it is customary for the owner of construction work to indicate where the material is to be placed which is taken from tunnel excavation. It is also customary to excavate tunnels from the lower grade end thereof because of the advantage to be gained in the drainage of water and removal of material. This is particularly the fact when the plans show the material to be taken from the tunnel excavation is to be used at the lower grade end thereof, as was shown on the plans and stated in the specifications for these tunnels.

63.

The contract provided that the highway work which was located west of the tunnels should include a finished pavement on the completed highway grade, and that same should be completed during good weather conditions which would give a dry condition for placing same. The highway was to be placed upon fills or embankments made in large part from material excavated from the tunnels; and plaintiff planned its work to complete same during the dry season of the summer of 1935, and would have completed this work during that period

and season if the tunnels had been excavated in self-supporting ground. Due to the delays in excavating the tunnels arising from the nature of the ground encountered, which slowed up the progress of excavation, the highway grade could not be finished and paved prior to the dry season in the spring and summer of 1936; and it would have been impossible for the plaintiff to complete the paving of the highway portions of the work until after June 4, 1936.

64.

On June 10, 1935, plaintiff filed with defendant a written application for an extension of time of 180 days within [245] which to perform the work under the contract.

On July 12, 1935, defendant, in writing, denied said application.

On July 26, 1935, plaintiff, in writing, renewed its said application to defendant.

Defendant took no action on said renewed application.

On August 28, 1935, plaintiff again made an application, in writing, to defendant, reaffirming its application of June 10, 1935, and requesting such additional time as might be necessary to perform the work.

Defendant took no action on said application.

On May 11, 1936, plaintiff again applied to defendant, in writing, for an extension of time within which to complete the work under the contract.

On May 14, 1936, defendant, in writing, denied said application.

65.

Neither said engineer of defendant nor the Board of Directors of defendant, at any time after the filing of any such applications by plaintiff and prior to the denial thereof, granted to plaintiff any hearing thereon or requested any evidence or further reasons in support thereof, or gave to plaintiff any opportunity to present any evidence or reasons in support of same.

66.

Wallace B. Boggs was the duly appointed and acting district engineer of defendant during all of the time that plaintiff was engaged in the performance of work under said contract. Prior to the filing of said applications for extensions of time and on several occasions during 1935 and 1936, representatives of plaintiff told said engineer that plaintiff was going to file such applications. Said representatives of [246] plaintiff further told said engineer that plaintiff had been delayed by bad weather, bad ground conditions, cave-ins and difficulty in procuring an adequate supply of competent labor.

Said engineer stated to said representatives of plaintiff that plaintiff was entitled to an extension of time because of the bad ground conditions, the cave-in of August 28, 1935, stormy and inclement weather and other causes, but stated further that

any application filed prior to just before the expiration of the contract time was premature and suggested the filing of such an application in April, 1936, and further stated that upon said application being then made, defendant would grant plaintiff a sufficient extension of time within which to complete the work under the contract without any enforcement of penalties. Plaintiff relied upon said statements of said engineer and believed, and thereafter acted upon said belief, that defendant would grant to it a sufficient extension of time within which to complete said work.

Said engineer and the members of the Board of Directors of defendant, at all times had full knowledge of the bad ground conditions encountered by plaintiff in excavating said tunnels, of said cave-ins and orders of said Industrial Accident Commission of the State of California, of the unavoidable delays to the work caused thereby and of all of the facts herein found in connection with the doing by plaintiff of the work of constructing said tunnels. Said engineer and the members of defendant's Board of Directors knew, at the time said applications for extensions of time were filed by plaintiff, that plaintiff had been unavoidably delayed in performing the work and was entitled, under said contract, to an extension of time within which to complete the work.

The decision of said engineer that plaintiff was not delayed in said work by Acts of God, or by

stormy or inclement weather, or by any reason which, in his judgment, unavoidably delayed the work was arbitrary, capricious and so grossly mistaken as to amount to fraud and is not binding on plaintiff and [247] the action of defendant in denying to plaintiff an extension of time within which to perform the work was arbitrary, capricious and so grossly mistaken as to amount to fraud.

67.

Plaintiff was entitled, as of right, under said contract, to an extension of time within which to perform the work thereunder equal to the number of days it had been unavoidably delayed in the performance of the work as herein found.

68.

Plaintiff in no way waived its right to said extension of time.

69.

On June 10, 1936, defendant delivered to plaintiff an estimate signed by defendant's said engineer which certified that plaintiff had performed work during the month of May, 1936, of the value of $168,985.53. Defendant deducted from said amount 10% thereof to be retained until the completion of said contract in accordance with the terms thereof. Defendant deducted the further amount of $3,500.00 making the following statement on said estimate in explanation of said deduction: "Deduc-

tions, Damages, Failure to complete within contract time 7 days at $500.00—$3500.00". At the time defendant delivered said estimate to plaintiff it delivered to plaintiff a check for $148,586.98, which was the balance remaining of the value of said work done by plaintiff in May, 1936, as shown by said estimate less said deductions.

70.

On June 13, 1936, plaintiff mailed to defendant said check with a notice of rescission of said contract as follows:

"June 13, 1936

"Joint Highway District No. 13
of The State of California,
1448 Webster Street,
Oakland, California. [248]

"Gentlemen:

"You are hereby notified that the undersigned, Six Companies of California, has elected to and does hereby terminate and rescind the contract dated June 4, 1934, between the undersigned and your District for the construction, erection and completion of the project of said Joint Highway District No. 13 of the State of California, which includes a highway, highway tunnels, and approaches with the appurtenant structures located partly in the City of Oakland, County of Alameda, State of California, and partly in the County of

Contra Costa, State of California, commonly known as the Broadway Tunnel Project.

"Said rescission is made upon the following grounds and each and all of them:

"First: Through your fault the consideration for our obligations under said contract has failed in part in that you have failed and refused to pay us the amount estimated by you to be due us under the monthly estimate for work done during the month of May, 1936. Said failure consists in the deduction by you from the amount estimated by you to be due us for such work of the sum of $3,500 for claimed damages for failure to complete the work under said contract, said deduction being computed at the rate of $500 per day for each day in May 1936 following May 24th, and to and including the 31st day of May, and including such a deduction for a legal holiday, May 30, and a non-working day, Sunday, May 31st. Said deduction was and is contrary to and in violation of the terms of the contract in that we were and are entitled as a matter of right and of law to an extension of time thereunder for performance of same to a date after May 31, 1936; and was and is further in violation of the provisions of the said contract in that any damages for delay in completion of the contract can only be asserted or claimed against the contractor for working days after the contract date for completion.

"Second: That the consideration for said contract has failed in a material respect in that you

have breached said contract by refusing to pay us the amount due us under your monthly estimate for work done during the month of May, 1936. Said failure consists in the deduction by you from the amount due us for such work of the sum of $3,500 for claimed damages for failure to complete the work under said contract within contract time, said deduction being computed at the rate of $500 per day for each day in May, 1936 following May 24th, and to and including the 31st day of May, and including such a deduction for a legal holiday, May 30th, and a non-working day, Sunday, May 31st. Said deduction was and is contrary to and in violation of the terms of the contract in that we were and are entitled as a matter of right and of law to an extension of time thereunder for performance of same to a date after May 31, 1936; and was and is further in violation of the provisions of the said contract in that any damages for delay in completion of the contract can only be asserted or claimed against the contractor for working days after the contract date for completion.

"Third: That in failing to pay said sum mentioned in numbered paragraphs First and Second above and by your refusal to grant said extension of time you have breached [249] said contract, and ground for rescission has arisen in our favor.

"Fourth: That your failure and refusal to grant us the extensions of time to which we are entitled as a matter of right and of law for completion of

said contract after May 24, 1936, although we have repeatedly requested the grant of such extensions is a breach of the contract.

"Fifth: Because the ground encountered in the excavation for the tunnels provided for in the contract has been and is entirely and radically different from the character of ground represented to the contractor as that which would be encountered, and which was contemplated and predicted by the contract, geological report, specifications, plans and any and all other documents forming a portion or part thereof.

"Sixth: For your failure and refusal to furnish points, lines and grades for us to work to and other engineering work in the construction of the tunnels as is required to be done or furnished by you by the terms and provisions of the contract and specifications forming a part thereof.

"Seventh: Because the work which is necessarily required to be done to construct the tunnels under the ground conditions actually encountered at their site is not provided for in the contract and was not contemplated by the parties at the time the contract was made.

"Eighth: For any and all other grounds of rescission of said contract of June 4, 1934 which may have heretofore existed or which do now exist in favor of the undersigned.

"We are returning herewith to you your check #1934 dated June 10, 1936 in purported payment

of the estimate for the work done by us during the month of May, 1936.

Very truly yours,
SIX COMPANIES OF
CALIFORNIA
By HENRY J. KAISER
President."

Said check and notice of rescission were received by defendant on June 15, 1936.

Thereafter and on June 13, 1936, plaintiff stopped all work under said contract and did not thereafter perform any work thereunder except that for a few days it operated pumps and kept watchmen at the site to protect the work.

On June 15, 1936, plaintiff notified defendant that it would cease to operate the pumps and maintain the watchmen at midnight of June 16, 1936. [250]

On June 16, 1936, defendant sent to plaintiff a letter, which was received by plaintiff on or about said date, as follows:

"June 16, 1936

"Six Companies of California
1522 Latham Square Building
Oakland, California

Gentlemen:

"Your letter of June 13, 1936 in which you notified this District of a purported termination and rescission of your contract with this District dated

June 4, 1934, has been received and considered by the Board of Directors of the District, and this reply thereto is made at the direction of the Directors of the District.

"You are hereby advised that Joint Highway District No. 13 of the State of California considers all of the grounds stated by you as a basis for your attempted rescission and termination of the contract are without basis in fact or law; that this District has fully paid all sums required to be paid, performed and done all things required to be performed and done by it under the said contract, and that you, as such contractor, have no valid grounds or reason whatsoever for your attempted rescission and termination of the contract.

"You are advised that your cessation of the work upon the project and your withdrawal of workmen from the construction of the project constitutes an abandonment by you of the work to be done under the contract; that your said acts which unnecessarily and unreasonably delay and continue to delay the work you contracted to perform, and your attempted rescission and termination of the contract, and each and all of them, constitute wilfull breaches of the contract by you.

"You are further advised that unless you as said contractor resume work on the project and perform the same in accordance with all of the terms thereof within three (3) days of the date of your receipt of this letter, that this District will consider your acts and conduct as aforesaid a final abandonment

of the contract and the work to be done thereunder, and the District will proceed to complete the same in accordance with the provisions of the contract, and that the District will hold you and your bondsmen liable for any and all costs thereof in excess of the contract price and any and all damages to this District by reason of your wilfull abandonment of the work in violation of the terms of your contract with this District dated June 4, 1934.

Yours very truly,
JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA,
By L. V. EATON
Assistant Secretary." [251]

Under date of July 9, 1936, defendant's said engineer made and signed an estimate which stated that the value of the work performed by plaintiff from June 1 to June 13, 1936, both days inclusive, was $96,906.29. Defendant deducted therefrom 10% thereof to be retained until the contract was completed, in accordance with the terms thereof and deducted the further sum of $6,500.00 which was explained on said estimate by the following statement: "Deductions, Damages, Failure to complete within contract time this estimate 13 days at $500= $6500.00."

Said estimate together with a check for $80,715.66, being said amount of $96,906.29 less said deductions was delivered by defendant to plaintiff on

or about July 9, 1936. At the same time defendant again delivered to plaintiff said check in the amount of $148,586.98, referred to in paragraph 69 hereof.

On July 15, 1936, plaintiff returned both of said checks to defendant and delivered to it at the same time the following letter:

"July 15, 1936

"Joint Highway District #13
of the State of California
1448 Webster Street
Oakland, Calif.

"Gentlemen:

"We hereby acknowledge receipt of your check No. 1934 in the amount of $148,586.98 and also your check No. 2201 in the amount of $80,715.66 dated June 10, 1936 and July 9, 1936 respectively.

"By notice dated June 13, 1936, and heretofore delivered to you, the undersigned rescinded said contract for the reasons and upon the grounds stated in said notice. Said checks are hereby returned to you.

Very truly yours.
SIX COMPANIES OF
CALIFORNIA
By HENRY J. KAISER,
Pres.
By T. M. PRICE." [252]

71.

Defendant never tendered to plaintiff or offered to pay to it the amount of $3,500.00 which it deducted from the amount of the payment due for work done in May, 1936, or the amount of $6,500.00 which it deducted from the amount of the payment due for work done in June, 1936, or any part of either of said amounts, but at all times refused to pay the same.

72.

The refusal of defendant to grant to plaintiff any extension of time within which to complete the work under said contract and its action in making said deduction from the payment due for work performed by plaintiff in May, 1936, was a declaration by defendant that it would continue to make deductions at the rate of $500.00 per day from the payments due plaintiff for work done under said contract from and after May 24, 1936, until all of the work under said contract was completed.

Plaintiff would have reasonably required 224 days after May 24, 1936, within which to have completed the work remaining to be done under said contract and the total amount of the deductions which would have been made by defendant, if plaintiff had not rescinded said contract and stopped work, from payments due and to become due for work done thereunder, would have been $112,000.00.

The time for performance of the work under the contract did not expire until June 3, 1936. The de-

duction of $3,500.00 from the amount due for work done in May, 1936, was wrongful and a violation of the rights of plaintiff under the contract and was a breach of the contract by defendant.

73.

Plaintiff was entitled, under the contract, to an extension of time within which to perform the work more than [253] sufficient to enable it to complete the same and the denial by defendant of such extension and its assertion of the right to deduct $500.00 per day from and after May 24, 1936, until the work under the contract was completed was a material breach of said contract by defendant which entitled plaintiff to rescind said contract and recover from defendant the reasonable value of the work done and labor and materials furnished in the performance thereof.

74.

Said contract obligated defendant and its engineer to set for plaintiff sufficient points to line and grade to work to in constructing said tunnels. Plaintiff, on many occasions, demanded that said engineer set said points, but defendant and said engineer repeatedly refused to do so and never at any time during the construction of said tunnels set any points to line and grade to which plaintiff could work. In order to construct said tunnels plaintiff was at all times required to set the necessary points to line and grade to which to work. The

setting of said points to line and grade was necessary and essential to the construction of said tunnels and must necessarily be done before the excavation thereof could proceed. It was work which must be done before plaintiff could proceed with the excavation of said tunnels.

The promise and agreement of defendant to cause its engineer to set said lines and grades was a condition precedent to the performance by plaintiff of the work of excavating said tunnels and the failure and refusal of defendant to perform said promise and agreement was a continuing material breach of said contract which justified plaintiff in stopping work thereunder and in rescinding the same. The fact that plaintiff set said points to line and grade for constructing a [254] part of said tunnels did not relieve defendant of its obligation to set said points for the work remaining to be done when plaintiff rescinded said contract or waive the right of plaintiff to rescind said contract and refuse to proceed with the work on account of the refusal of defendant to set said points for the work then remaining to be done. At no time, either before or after receiving said notice of rescission, did defendant or its said engineering set, or offer to set, said points.

75.

Plaintiff, from the time of the execution of said contract until it rescinded same and stopped work thereunder, fully carried out and performed all the promises and obligations contained therein on its part to be performed.

76.

Plaintiff, at all times prosecuted the construction work under the contract with diligence and furnished and supplied for the performance of the work all necessary men, equipment, machinery and materials. Plaintiff adopted and used usual, approved and proper construction methods. It made as much progress in performing the construction work as was possible under the conditions encountered and performed the work which it did perform in constructing said tunnels in as short a time as was possible under such conditions. The failure to complete the construction work under said contract before June 4, 1936, was in no way due to any fault or negligence of plaintiff, but was due solely to causes over which it had no control and which unavoidably delayed the work, which causes have hereinbefore been specifically found as facts.

77.

The amount of money expended by plaintiff in perform- [255] ing work under the contract was $3,828,998.84, which sum was the reasonable cost of the work done by plaintiff prior to rescission by it of the contract. Defendant has paid to plaintiff $2,021,047.11 and no more.

Plaintiff is entitled to recover from defendant the difference between said reasonable cost of $3,-828,998.84 so expended by it and $2,021,047.11 paid to it by defendant, which difference is $1,807,951.73 plus a reasonable profit on the amount so expended

by plaintiff in the performance of the work which plaintiff did under said contract which the Court finds is 17-½ per centum of the amount so expended by plaintiff, or $670,074.80.

78.

The reasonable value of the work done by plaintiff was and is the amount of $4,499,073.64. [256]

Plaintiff and cross-defendants further move the Court to make the following conclusions of law.

Based upon the foregoing findings of fact the Court makes the following

CONCLUSIONS OF LAW

1.

That plaintiff was entitled under said contract to an extension of time of 498 days within which to complete the construction work thereunder.

2.

That defendant breached its contract with plaintiff in failing and refusing, prior to the expiration of the time stipulated in said contract for the performance of the construction work thereunder, to extend the time of plaintiff for the performance of said work.

3.

That defendant breached its said contract with the plaintiff in failing and refusing to pay the full amount of the installment payments due thereunder and in deducting from the installment payment due plaintiff on June 10, 1936, the amount of $3,500.00

being the amount of $500.00 per day as claimed damages for failure to complete the work in the stipulated time. That the total amount of said deductions, which were intended to be, and which would have been, deducted by defendant from installment payments thereafter to become due from defendant to plaintiff under said contract, if plaintiff had continued the work and completed said project would have been $112,000.00. Said breach was material and entitled plaintiff to rescind said contract.

4.

That immediately after the breach of said contract by defendant arising from said deduction of said amount from [257] the installment payment due plaintiff on June 10, 1936, plaintiff promptly and with due diligence rescinded said contract. That plaintiff did not waive its right to rescind said contract by laches, delay, or otherwise.

5.

That upon the rescission of said contract by plaintiff it became entitled to recover from defendant the reasonable value of the work done by plaintiff while performing said contract.

6.

That plaintiff made timely and proper applications for extensions of time as causes of delay entitling it to same arose, but same were denied by arbitrary and capricious conduct and decisions of

defendant and its engineer which amounted to fraud.

7.

That the work required to be done in constructing said tunnels was so radically different from the work described in said contract and was such a transformation therefrom and was so radically different from the work contemplated by the parties at the time said contract was entered into, that the minds of the parties never met on a contract for performing said work.

8.

That plaintiff and defendant both believed, at the time said contract was entered into that the tunnels described in same would be constructed through ground which, for nearly all of the length of said tunnels, would be self-supporting, and the work was designed in this belief and bid for by plaintiff in this belief and said contract was entered into under a mutual mistake of fact on the part of both parties which entitled plaintiff to rescind said contract. [258]

9.

That the representations and statements contained in the geological report and the plans and specifications furnished by defendant to plaintiff constituted a warranty as to the ground conditions to be encountered in constructing said tunnels and a warranty that for over 2,000 feet in each of said tunnels the ground would be self-supporting. That

plaintiff relied upon said warranty in entering into said contract. That said representations and statements were not true and the actual ground conditions encountered by plaintiff in constructing said tunnels were so materially different from those so represented by defendant that there was a breach of said warranty and the said warranty and the breach thereof constituted a fraud upon plaintiff which entitled it to rescind said contract.

10.

That defendant breached its said contract in failing and refusing to set sufficient points to line and grade to which plaintiff could work in constructing said tunnels. That the setting of said points was an obligation of defendant which was a condition precedent to the continuance by plaintiff of the work under said contract and the performance thereof. That said obligation was a continuing promise by defendant which it had a continual obligation to perform as the work was done. That the breach by defendant of said contract in refusing to set said points was material and entitled plaintiff to rescind said contract and that plaintiff did not waive its right to rescind said contract for said breach by delay, laches, or otherwise.

11.

That plaintiff is entitled to recover from defendant the reasonable value of the work and labor done and materials furnished by plaintiff to defendant in the performance of said [259] contract to June 13,

1936, less the amount defendant has paid to plaintiff, with interest on the amount unpaid from June 13, 1936, to the date of judgment, at the rate of 7% per annum.

The reasonable value of the work so performed and labor and materials so furnished was and is the amount of $4,499,073.64. Defendant has paid plaintiff the amount of $2,021,047.11 and no more, leaving a balance owing from defendant to plaintiff of $2,478,026.53.

12.

Plaintiff is entitled to judgment against defendant for said amount of $2,478,026.53 with interest thereon at the rate of 7% per annum from June 13, 1936, to the date of judgment, and its costs and disbursements herein incurred.

13.

Defendant is not entitled to recover any amount on its cross-complaint against plaintiff or against any of the cross-defendants.

14.

All of the cross-defendants are entitled to judgment that defendant take nothing by its cross-complaint and for their costs of suit incurred herein.

Let judgment be entered accordingly.

Dated: ....., 1938.

.....

Judge of the United States District Court.

[Endorsed]: Lodged Sept. 15, 1938. [260]

In the United States District Court of the Northern District of California, Southern Division.

No. 20101 R.

SIX COMPANIES OF CALIFORNIA, a corporation,

Plaintiff & Cross-Defendant,

vs.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Defendant & Cross-Complainant,

and

HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation,

STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Cross-Defendants.

JUDGMENT

The above-entitled cause came on regularly for trial before the above-entitled Court, Honorable Michael J. Roche, Judge presiding, without a jury, the jury having been expressly waived by a written stipulation of all parties hereto heretofore filed in the above-entitled Court and Cause; said trial [261] began on the 12th day of April, 1938; plaintiff and cross defendant, Six Companies of California, appearing by its counsel, Messrs. Thelen & Marrin, DeLancey C. Smith, Eugene E. Trefethen and J. Paul St. Sure; and defendant and cross-complainant, Joint Highway District No. 13 of the State of California, appearing by its counsel, Archibald B. Tinning, Esq., and T. P. Wittschen, Esq., and cross-defendants Hartford Accident and Indemnity Company, a corporation, Fidelity and Deposit Company of Maryland, a corporation, The Aetna Casualty and Surety Company, a corporation, Indemnity Insurance Company of North America, a

corporation, American Surety Company of New York, a corporation, Maryland Casualty Company, a corporation, United States Fidelity and Guaranty Company, a corporation, The Fidelity and Casualty Company of New York, a corporation, Glens Falls Indemnity Company, a corporation, Standard Surety and Casualty Company of New York, a corporation, Standard Accident Insurance Company, a corporation, Massachusetts Bonding and Insurance Company, a corporation, Continental Casualty Company, a corporation, and New Amsterdam Casualty Company, a corporation, appearing by their counsel Messrs. Redman, Alexander & Bacon; upon motion of the defendant and cross-complainant, duly and regularly granted by order of the Court, the cause of action stated in the cross-complaint of defendant and cross-complainant, Joint Highway District No. 13 of the State of California, was dismissed as to cross-defendants, Fireman's Fund Indemnity Company, a California corporation, and Pacific Indemnity Company, a California corporation; and the court proceeded with the trial of said cause from day to day until concluded and testimony and exhibits were introduced on behalf of the parties to said action, and [262] at the conclusion of taking said testimony and offering of documents, the case was duly argued and submitted to the court for consideration and decision, and after due deliberation thereon, the court made its findings of fact and conclusions of law in writing thereon, which were duly filed herein, and directed the entry of judgment in accordance therewith.

Wherefore, by reason of the law and the findings aforesaid, It Is Hereby Ordered and Adjudged

1. That plaintiff take nothing by its said complaint on file herein, or by either count thereof;

2. That defendant and cross-complainant, Joint Highway District No. 13 of the State of California, a public corporation, do have and recover of and from plaintiff and cross-defendant Six Companies of California, a corporation, the sum of Three Hundred Nine Thousand Sixty-eight and 16/100 Dollars ($309,068.16).

3. That said defendant and cross-complainant Joint Highway District No. 13 of The State of California, a public corporation, do have and recover, jointly and severally, against said plaintiff Six Companies of California and against each of the respective Surety Company cross-defendants hereinafter named, the following percentages of said sum of Three Hundred Nine Thousand Sixty-eight and 16/100 Dollars ($309,068.16) as follows:

(a) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-defendant Hartford Accident and Indemnity Company, a Connecticut corporation, ten (10) per centum of said sum, to wit, the sum of Thirty Thousand Nine Hundred Six and 81/100 Dollars ($30,906.81);

(b) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-

defendant Fidelity and Deposit Company of Maryland, a Maryland corporation, ten (10) per centum [263] of said sum, to wit, the sum of Thirty Thousand Nine Hundred Six and 81/100 Dollars ($30,906.81);

(c) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-defendant The Aetna Casualty and Surety Company, a Connecticut corporation, ten (10) per centum of said sum, to wit, the sum of Thirty Thousand Nine Hundred Six and 81/100 Dollars ($30,906.81);

(d) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-defendant Indemnity Insurance Company of North America, a Pennsylvania corporation, ten (10 per centum of said sum, to wit, the sum of Thirty Thousand Nine Hundred Six and 81/100 Dollars ($30,906.81);

(e) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-defendant American Surety Company of New York, a New York corporation, ten (10) per centum of said sum, to wit, the sum of Thirty Thousand Nine Hundred Six and 81/100 Dollars ($30,906.81);

(f) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-

defendant Maryland Casulty Company, a Maryland corporation, six and one-half (6½) per centum of said sum, to wit, the sum of Twenty Thousand Eighty-nine and 43/100 Dollars ($20,089.43);

(g) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-defendant United States Fidelity and Guaranty Company, a Maryland corporation six and one-half (6½) per centum of said sum, to wit, the sum of Twenty Thousand Eighty-nine and 43/100 Dollars ($20,089.43); [264]

(h) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-defendant The Fidelity and Casualty Company of New York, a New York corporation, five (5) per centum of said sum, to wit, the sum of Fifteen Thousand Four Hundred and Fifty-three and 40/100 Dollars ($15,453.40);

(i) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-defendant Glens Falls Indemnity Company, a New York corporation, four and one-half (4½) per centum of said sum, to wit, the sum of Thirteen Thousand Nine Hundred Eight and 06/100 Dollars ($13,908.06);

(j) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-

defendant Standard Surety and Casualty Company of New York, a New York corporation, four (4) per centum of said sum, to wit, the sum of Twelve Thousand Three Hundred Sixty-two and 72/100 Dollars ($12,362.72);

(k) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-defendant Standard Accident and Insurance Company, a Michigan corporation, four (4) per centum of said sum, to wit, the sum of Twelve Thousand Three Hundred Sixty-two and 72/100 Dollars ($12,362.72);

(l) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, a corporation, and against cross-defendant Massachusetts Bonding and Insurance Company, a Massachusetts corporation, four (4) per centum of said sum, to wit, the sum of Twelve Thousand Three Hundred Sixty-two and 72/100 Dollars ($12,362.72);

(m) Said defendant do have and recover, jointly and severally, against said plaintiff Six Companies of California, [265] a corporation, and against cross-defendant Continental Casualty Company, an Indiana corporation, two and one-half (2½) per centum of said sum, to wit, the sum of Seven Thousand Seven Hundred Twenty-six and 70/100 Dollars ($7,726.70);

(n) Said defendant do have and recover, jointly and severally against said plaintiff Six Companies

of California, a corporation, and against cross-defendant New Amsterdam Casualty Company, a New York corporation, two (2) per centum of said sum, to wit, the sum of Six Thousand One Hundred Eighty-one and 36/100 Dollars ($6,181.36);

4. That defendant and cross-complainant Joint Highway District No. 13 of the State of California, do have and recover from plaintiff and each of the cross-defendants hereinbefore named its costs of suit incurred herein taxed at the sum of Eight Hundred Seventy-two and 70/100 Dollars ($872.70).

Judgment entered September 27, 1938.

WALTER B. MALING,
Clerk.

[Endorsed]: Filed Sept. 27, 1938. [266]

[Title of District Court and Cause.]

NOTICE

To Thelen & Marrin, Balfour Building, San Franciso, California, Archibald B. Tinning, 924 Main Street, Martinez, California, T. P. Wittschen, Latham Square Building, Oakland, California, Redman, Alexander & Bacon, 315 Montgomery St., San Francisco, California.

You Are Hereby Notified that on September 27th, 1938, a Judgment was entered by this office in the above entitled case.

WALTER B. MALING,
Clerk.

San Francisco, Calif., September 27th, 1938. [267]

[Title of District Court and Cause.]

NOTICE OF ENTRY OF JUDGMENT [268]

To said plaintiff and cross-defendant and Messrs. Thelen & Marrin, DeLancey C. Smith, Eugene E. Trefethen, and J. Paul St. Sure, attorneys for said plaintiff and cross-defendant; and to said cross-defendants and Messrs. Redman, Alexander & Bacon, attorneys for said cross-defendants:

You and Each of You will please take notice that judgment in the above-entitled action was filed and entered on the 27th day of September, 1938:

1. In favor of said defendant herein and against said plaintiff herein;

2. In favor of said defendant and cross-complainant and against said plaintiff and cross-defendant;

3. In favor of said defendant and cross-complainant, and jointly and severally against said plaintiff and cross-defendant, and against each of said cross-defendants.

Dated this 29th day of September, 1938.

ARCHIBALD B. TINNING,
T. P. WITTSCHEN,
Attorneys for Defendant and
Cross-Complainant. [269]

State of California
County of Contra Costa—ss.

Eugenia Belon, being first duly sworn, deposes and says:

That she is a citizen of the United States, over the age of eighteen years, not a party to, nor interested in the foregoing entitled action; that she is a stenographer in the office of Archibald B. Tinning, one of the attorneys at law in the foregoing entitled action for Joint Highway District No. 13 of the State of California, the defendant and cross-complainant therein; that said Archibald B. Tinning has his office in the City of Martinez, County of Contra Costa, State of California, and that Messrs. Thelen & Marrin, one of the attorneys for the plaintiff and cross-defendant Six Companies of California in said action, have their offices in the Balfour Building, in the City and County of San Francisco, State of California; that there is a regular communication by mail between the said City of Martinez and the said City and County of San Francisco; that on the 29th day of September, 1938, affiant served the foregoing Notice of Entry of Judgment on the said plaintiff Six Companies of California, by depositing a true copy thereof, enclosed in a sealed envelope, with the postage thereon prepaid, addressed to:

Messrs. Thelen & Marrin,
Attorneys at Law,
Balfour Building,
San Francisco, California,

in the United States Post Office in the City of Martinez, on the said 29th day of September, 1938; and that the said address of the said attorneys for said

plaintiff and cross-defendant is the last known address of said attorneys.

EUGENIA BELON.

Subscribed and sworn to before me this 29th day of September, 1938.

[Not'l Seal] HAZEL RICE,

Notary Public in and for the County of Contra Costa, State of California. [270]

State of California
County of Contra Costa- ss.

Eugenia Belon, being first duly sworn, deposes and says:

That she is a citizen of the United States, over the age of eighteen years, not a party to, nor interested in the foregoing entitled action; that she is a stenographer in the office of Archibald B. Tinning, one of the attorneys at Law in the foregoing entitled action for Joint Highway District No. 13 of the State of California, the defendant and cross-complainant therein; that said Archibald B. Tinning has his office in the City of Martinez, County of Contra Costa, State of California, and that Messrs. Redman, Alexander & Bacon, attorneys for the cross-defendants Hartford Accident and Indemnity Company, a corporation, Fidelity and Deposit Company of Maryland, a corporation, The Aetna Casualty and Surety Company, a corporation, Indemnity Insurance Company of North America, a corporation, American Surety Company of New York, a corporation, Maryland

Casualty Company, a corporation, United States Fidelity and Guaranty Company, a corporation, The Fidelity and Casualty Company of New York, a corporation, Glens Falls Indemnity Company, a corporation, Standard Surety and Casualty Company of New York, a corporation, Standard Accident Insurance Company, a corporation, Massachusetts Bonding and Insurance Company, a corporation, Continental Casualty Company, a corporation, and New Amsterdam Casualty Company, a corporation, in said action, have their offices at 315 Montgomery Street, in the City and County of San Francisco, State of California; that there is a regular communication by mail between the said City of Martinez and the said City and County of San Francisco; that on the 29th day of September, 1938, affiant served the foregoing Notice of Entry of Judgment on the said cross-defendants, by depositing a true copy [271] thereof, enclosed in a sealed envelope, with the postage thereon prepaid, addressed to:

Messrs. Redman, Alexander & Bacon,
Attorneys at Law,
315 Montgomery Street,
San Francisco, California,

in the United States Post Office in the City of Martinez, on the said 29th day of September, 1938; and that the said address of the said attorneys for said cross-defendants is the last known address of said attorneys.

EUGENIA BELON

Subscribed and sworn to before me this 29th day of September, 1938.

[Notarial Seal] HAZEL RICE

Notary Public in and for the County of Contra Costa, State of California.

[Endorsed]: Filed Sep. 30, 1938. [272]

[Title of District Court and Cause.]

NOTICE OF APPEAL TO CIRCUIT COURT OF APPEALS UNDER RULE 73(b). [273]

Notice is hereby given that Six Companies of California, a corporation, plaintiff and cross-defendant above-named, and Hartford Accident and Indemnity Company, a corporation, Fidelity and Deposit Company of Maryland, a corporation, The Aetna Casualty and Surety Company, a corporation, Indemnity Insurance Company of North America, a corporation, American Surety Company of New York, a corporation, Maryland Casualty Company, a corporation, United States Fidelity and Guaranty Company, a corporation, The Fidelity and Casualty Company of New York, a corporation, Glens Falls Indemnity Company, a corporation, Standard Surety and Casualty Company of New York, a corporation, Standard Accident Insurance Company, a corporation, Massachusetts Bonding and Insurance Company, a corporation, Continental Casualty Company, a corporation, and New Amsterdam Casualty Company, a

corporation, cross-defendants above-named, hereby appeal and each of said named parties does hereby appeal to the Circuit Court of Appeals for the Ninth Circuit from the final judgment entered in this action on September 27th, 1938.

Dated: San Francisco, California, November 25, 1938.

PAUL S. MARRIN
THELEN & MARRIN
DeLANCEY C. SMITH
EUGENE E. TREFETHEN
1000 Balfour Building,
351 California Street,
San Francisco, California.
Attorneys for Appellant
Six Companies of California.

[274]

JEWELL ALEXANDER
REDMAN, ALEXANDER & BACON
315 Montgomery Street,
San Francisco, California.
Attorneys for Appellants
Hartford Accident and Indemnity Company,
a corporation,
Fidelity and Deposit Company of Maryland,
a corporation,
The Aetna Casualty and Surety Company,
a corporation,

[Endo

Indemnity Insurance
Company of North America,
a corporation,
American Surety Company of
New York,
a corporation,
Maryland Casualty Company,
a corporation,
United States Fidelity and
Guaranty Company,
a corporation,
The Fidelity and Casualty
Company of New York,
a corporation,
Glens Falls Indemnity
Company,
a corporation,
Standard Surety and Casualty
Company of New York,
a corporation,
Standard Accident Insurance
Company,
a corporation,
Massachusetts Bonding and
Insurance Company,
a corporation,
Continental Casualty
Company,
a corporation,
New Amsterdam Casualty
Company,
a corporation.

ıdorsed]: Filed Nov. 25, 1938. [275]

[Title of District Court and Cause.]

NOTICE

To Tinning & De Lap,
924 Main Street,
Martinez, California

T. P. Wittschen,
Latham Square Bldg.,
Oakland,

You Are Hereby Notified that on November 25 1938 a Notice of Appeal was filed by plaintiff & Cross-defendants in the above entitled case.

WALTER B. MALING,
Clerk.

San Francisco, Calif., November 25th, 1938. [276]

[Title of District Court and Cause.]

SUPERSEDEAS BOND ON APPEAL.

[277]

Know All Men By These Presents:

That we, Six Companies of California, a Nevada corporation, as principal, and Henry J. Kaiser Company, a Nevada corporation, The Utah Construction Company, a Utah corporation, MacDonald & Kahn Co., Ltd., a Delaware corporation, J. F. Shea Co., Inc., a Delaware corporation, Morrison-Knudsen Company, Inc., a Delaware corporation, S. D. Bechtel, an individual, K. K. Bechtel, an individual, and W. A. Bechtel, Jr., an individual, as sureties, acknowledge ourselves to be indebted to Joint Highway District No. 13 of the State of

California, a public corporation of the State of California, in the sum of Three Hundred and Sixty Thousand and no/100 Dollars ($360,000.00), lawful money of the United States of America, for the payment whereof well and truly to be made, we hereby bind ourselves, our heirs, administrators, successors and assigns, firmly by these presents as follows:

The principal and Henry J. Kaiser Company, a Nevada corporation, as surety, jointly and severally in a sum equal to one-sixth of the total amount of this bond, but in no event shall the aggregate liability of Henry J. Kaiser Company hereunder exceed the amount of Sixty Thousand and no/100 Dollars ($60,000.00);

The principal and The Utah Construction Company, a Utah corporation, as surety, jointly and severally in a sum equal to one-sixth of the total amount of this bond, but in no event shall the aggregate liability of The Utah Construction Company hereunder exceed the amount of Sixty Thousand and no/100 Dollars ($60,0000.00);

The principal and MacDonald & Kahn Co., Ltd., a Delaware corporation, as surety, jointly and severally in a sum equal to one-sixth of the total amount of this bond, but in no event shall the aggregate liability of MacDonald & [278] Kahn Co., Ltd., hereunder exceed the amount of Sixty Thousand and no/100 Dollars ($60,000.00);

The principal and J. F. Shea Co., Inc., a Delaware corporation, as surety, jointly and severally

in a sum equal to one-sixth of the total amount of this bond, but in no event shall the aggregate liability of J. F. Shea Co., Inc., hereunder exceed the amount of Sixty Thousand and no/100 Dollars ($60,000.00);

The principal and Morrison-Knudsen Company, Inc., a Delaware corporation, as surety, jointly and severally in a sum equal to one-sixth of the total amount of this bond, but in no event shall the aggregate liability of Morrison-Knudsen Company, Inc., hereunder exceed the amount of Sixty Thousand and no/100 Dollars ($60,000.00);

The principal and S. D. Bechtel, K. K. Bechtel and W. A. Bechtel, Jr., as sureties, jointly and severally in a sum equal to one-sixth of the total amount of this bond, but in no event shall the aggregate liability of S. D. Bechtel, K. K. Bechtel and W. A. Bechtel, Jr., hereunder exceed the amount of Sixty Thousand and no/100 Dollars ($60,000.00).

The condition of the foregoing obligation is such that:

Whereas, on the 27th day of September, 1938, in the District Court of the United States of the Northern District of California, Southern Division, in a suit depending in that court wherein Six Companies of California was plaintiff and cross-defendant and Joint Highway District No. 13 of the State of California was defendant and cross-complainant and Six Companies of California and Hartford Accident and Indemnity Company, a Connecticut

corporation; Fidelity and Deposit Company of Maryland, a Maryland corporation; The Aetna Casualty and Surety Company, a Connecticut corporation; Indemnity Insurance [279] Company of North America, a Pennsylvania corporation; American Surety Company of New York, a New York corporation; Maryland Casualty Company, a Maryland corporation; United States Fidelity and Guaranty Company, a Maryland corporation; The Fidelity and Casualty Company of New York, a New York corporation; Glens Falls Indemnity Company, a New York corporation; Standard Surety and Casualty Company of New York, a New York corporation; Standard Accident Insurance Company, a Michigan corporation; Massachusetts Bonding and Insurance Company, a Massachusetts corporation; Continental Casualty Company, an Indiana corporation; and New Amsterdam Casualty Company, a New York corporation, were cross-defendants, numbered on the Civil Docket as 20101-R, a judgment was rendered in favor of said defendant and against said plaintiff on the complaint and in favor of said defendant and cross-complainant and against said plaintiff and cross-defendants on the cross-complaint, and the said plaintiff and cross-defendants having filed or being about to file in the office of the Clerk of said District Court a Notice of Appeal to the United States Circuit Court of Appeals for the Ninth Circuit to be holden in the City and County of San Francisco, State of California.

Now, the condition of the above obligation is such that if the said plaintiff and cross-defendants shall prosecute their appeals to effect and satisfy the said judgment in full, together with costs, interest and damages for delay if for any reason said appeals are dismissed, or if the judgments are affirmed, and satisfy in full such modification of the judgments and such costs, interest and damages as the Appellate [280] Court may adjudge and award, then the above obligation is void else to remain in full force and effect.

In Witness Whereof, the undersigned have executed this bond this 7th day of November, 1938.

SIX COMPANIES OF CALIFORNIA,
a Nevada corporation,

[Seal] By HENRY J. KAISER,
President.

By GEORGE T. SLOAN,
Assistant Secretary.
Principal.

HENRY J. KAISER COMPANY,
a Nevada corporation,

[Seal] By HENRY J. KAISER,
President.

By E. E. TREFETHEN, JR.,
Secretary,

THE UTAH CONSTRUCTION
COMPANY,
a Utah corporation,
[Seal] By L. S. COREY,
Vice-President.
By P. L. WATTIS,
Secretary,
MacDONALD & KAHN CO.,
LTD.,
a Delaware corporation,
President,
[Seal] By FELIX KAHN,
By E. G. SAHLIN,
Asst. Secretary.
J. F. SHEA CO., INC.,
a Delaware corporation,
[Seal] By CHARLES A. SHEA,
President.
By N. J. GOLDSMITH,
Assistant Secretary. [281]
MORRISON-KNUDSEN
COMPANY, INC.,
a Delaware corporation,
[Seal] By H. W. MORRISON,
Vice-President.
By C. W. JOSLYN,
Secretary.
S. D. BECHTEL,
K. K. BECHTEL,
W. A. BECHTEL, JR.,
Sureties.

Approved this 25th day of November, 1938.
MICHAEL J. ROCHE,
District Judge. [282]

State of California
County of Alameda—ss.

On this 7th day of November, 1938, before me Paul E. Rogers, a Notary Public in and for the County of Alameda, State of California, residing therein, duly commissioned and sworn, personally appeared Henry J. Kaiser and George T. Sloan, known to me to be the President and Assistant Secretary, respectively, of Six Companies of California, the corporation that executed the within instrument and also known to me to be the persons who executed the within instrument on behalf of said corporation therein named and acknowledged to to me that such corporation executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my official seal in my office in the County of Alameda, State of California, on the day and year in this certificate first above written.

[Notarial Seal] PAUL E. ROGERS
Notary Public in and for the County of Alameda, State of California.

(My commission expires Oct. 27, 1940.) [283]

State of California,
County of Alameda—ss.

On this 7th day of November, 1938, before me Paul E. Rogers, a Notary Public in and for the County of Alameda, State of California, residing therein, duly commissioned and sworn, personally appeared Henry J. Kaiser and E. E. Trefethen, Jr.,

known to me to be the President and Secretary, respectively, of Henry J. Kaiser Company, the corporation that executed the within instrument and also known to me to be the persons who executed the within instrument on behalf of said corporation therein named and acknowledged to me that such corporation executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my official seal in my office in the County of Alameda, State of California, on the day and year in this certificate first above written.

[Notarial Seal] PAUL E. ROGERS,
Notary Public in and for the County of Alameda, State of California.

(My commission expires Oct. 27, 1940) [284]

State of California,
City and County of San Francisco—ss.

On this 17th day of November, 1938, before me Lulu P. Loveland, a Notary Public in and for the City and County of San Francisco, State of California, residing therein, duly commissioned and sworn, personally appeared L. S. Corey and P. L. Wattis, known to me to be the Vice-President and Secretary, respectively, of The Utah Construction Company, the corporation that executed the within instrument, and also known to me to be the persons who executed the within instrument on behalf of said corporation therein named and acknowledged to me that such corporation executed the same.

In Witness Whereof, I have hereunto set my

hand and affixed my official seal in my office in the City and County of San Francisco, State of California, on the day and year in this certificate first above written.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

(My commission expires December 8, 1938) [285]

State of California,
City and County of San Francisco—ss.

On this 10th day of November, 1938, before me Lulu P. Loveland, a Notary Public in and for the City and County of San Francisco, State of California, residing therein, duly commissioned and sworn, personally appeared Felix Kahn and E. G. Sahlin, known to me to be the President and Assistant Secretary, respectively, of MacDonald & Kahn Co., Ltd., the corporation that executed the within instrument and also known to me to be the persons who executed the within instrument on behalf of said corporation therein named and acknowledged to me that such corporation executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my official seal in my office in the City and County of San Francisco, State of California, the day and year in this certificate first above written.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

(My commission expires December 8, 1938) [286]

State of California,
City and County of San Francisco—ss.

On this 15th day of November, 1938, before me Lulu P. Loveland, a Notary Public in and for the City and County of San Francisco, State of California, residing therein, duly commissioned and sworn, personally appeared Charles A. Shea and N. J. Goldsmith, known to me to be the President and Assistant Secretary, respectively, of J. F. Shea Co., Inc., the corporation that executed the within instrument, and also known to me to be the persons who executed the within instrument on behalf of said corporation therein named and acknowledged to me that such corporation executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my official seal in my office in the City and County of San Francisco, State of California, the day and year in this certificate first above written.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

(My commission expires: December 8, 1938)

[287]

State of Idaho,
County of Ada—ss.

On this 14th day of November, 1938, before me B. B. Bliss, Jr., a Notary Public in and for the County of Ada, State of Idaho, residing therein,

duly commissioned and sworn, personally appeared H. W. Morrison and C. W. Joslyn, known to me to be the Vice-President and Secretary, respectively, of Morrison-Knudsen Company, Inc., the corporation that executed the within instrument, and also known to me to be the persons who executed the within instrument on behalf of said corporation therein named and acknowledged to me that such corporation executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my official seal in my office in the County of Ada, State of Idaho, on the day and year in this certificate first above written.

[Notarial Seal] B. B. BLISS, JR.
Notary Public in and for the County of Ada, State of Idaho.

My commission expires: 3/19/41 [288]

State of California,
City and County of San Francisco—ss.

On this 21st day of November, 1938, before me Lulu P. Loveland, a Notary Public in and for the City and County of San Francisco, State of California, residing therein, duly commissioned and sworn, personally appeared S. D. Bechtel, known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

In Witness Whereof, I have hereunto subscribed my name and affixed my official seal at my office in

the City and County of San Francisco, State of California, the day and year in this certificate first above written.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

(My commission expires December 8, 1938) [289]

State of California,
City and County of San Francisco—ss.

On this 16th day of November, 1938, before me Lulu P. Loveland, a Notary Public in and for the City and County of San Francisco, State of California, residing therein, duly commissioned and sworn, personally appeared K. K. Bechtel, known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

In Witness Whereof, I have hereunto subscribed my name and affixed my official seal at my office in the City and County of San Francisco, State of California, the day and year in this certificate first above written.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

(My commission expires December 8, 1938.) [290]

State of California,
City and County of San Francisco—ss.

On this 16th day of November, 1938, before me Lulu P. Loveland, a Notary Public in and for the City and County of San Francisco, State of California, residing therein, duly commissioned and sworn, personally appeared W. A. Bechtel, Jr., known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

In witness whereof, I have hereunto subscribed my name and affixed my official seal at my office in the City and County of San Francisco, State of California, the day and year in this certificate first above written.

[Notarial Seal] LULU P. LOVELAND
Notary Public in and for the City and County of San Francisco, State of California.

My commision expires December 8, 1938. [291]

State of California,
County of Alameda—ss.

Eugene E. Trefethen, Jr., being first duly sworn, deposes and says:

That he is an officer, to-wit, the Secretary of Henry J. Kaiser Company, a corporation, one of the sureties which executed the foregoing undertaking and as such is authorized to, and does, make this affidavit for and on behalf of said corporation.

That said corporation is qualified to do business

in the State of California and in the Northern District thereof and is the owner of property therein and is worth the amount specified in said undertaking for which it is bound, over and above all its just debts and liabilities, exclusive of property exempt from execution.

E. E. TREFETHEN, JR.

Subscribed and sworn to before me this 23rd day of November, 1938.

[Notarial Seal] PAUL E. ROGERS

Notary Public in and for the County of Alameda, State of California.

My Commission expires Oct. 27, 1940. [292]

State of California,
City and County of San Francisco—ss.

P. L. Wattis, being first duly sworn, deposes and says:

That he is an officer, to-wit, the Secretary of The Utah Construction Company, a corporation, one of the sureties which executed the foregoing undertaking and as such is authorized to, and does, make this affidavit for and on behalf of said corporation.

That said corporation is qualified to do business in the State of California and in the Northern District thereof and is the owner of property therein and is worth the amount specified in said undertaking for which it is bound, over and above all its just debts and liabilities, exclusive of property exempt from execution.

P. L. WATTIS

Subscribed and sworn to before me this 23rd day of November, 1938.

[Notarial Seal] LULU P. LOVELAND
Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires December 8, 1938. [293]

State of California,
City and County of San Francisco—ss.

Felix Kahn, being first duly sworn, deposes and says:

That he is an officer, to-wit, the President of MacDonald & Kahn Co., Ltd., a corporation, one of the sureties which executed the foregoing undertaking and as such is authorized to, and does, make this affidavit for and on behalf of said corporation.

That said corporation is qualified to do business in the State of California and in the Northern District thereof and is the owner of property therein and is worth the amount specified in said undertaking for which it is bound, over and above all its just debts and liabilities, exclusive of property exempt from execution.

FELIX KAHN

Subscribed and sworn to before me this 23rd day of November, 1938.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires Dec. 8th, 1938. [294]

State of California,
City and County of San Francisco.—ss.

Charles A. Shea, being first duly sworn, deposes and says:

That he is an officer, to-wit, the President of J. F. Shea Co., Inc., a corporation, one of the sureties which executed the foregoing undertaking and as such is authorized to, and does, make this affidavit for and on behalf of said corporation.

That said corporation is qualified to do business in the State of California and in the Northern District thereof and is the owner of property therein and is worth the amount specified in said undertaking for which it is bound, over and above all its just debts and liabilities, exclusive of property exempt from execution.

CHARLES A. SHEA

Subscribed and sworn to before me this 23rd day of November, 1938.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires Dec. 8th, 1938. [295]

State of California,
City and County of San Francisco.—ss.

R. E. Evans, being first duly sworn, deposes and says:

That he is an officer, to-wit, the Assistant Secretary of Morrison-Knudsen Company, Inc., a cor-

poration, one of the sureties which executed the foregoing undertaking and as such is authorized to, and does, make this affidavit for and on behalf of said corporation.

That said corporation is qualified to do business in the State of California and in the Northern District thereof and is the owner of property therein and is worth the amount specified in said undertaking for which it is bound, over and above all its just debts and liabilities, exclusive of property exempt from execution.

R. E. EVANS

Subscribed and sworn to before me this 23rd day of November, 1938.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires: December 8, 1938. [296]

State of California,
City and County of San Francisco.—ss.

S. D. Bechtel, one of the sureties named in and who executed the foregoing undertaking, being duly sworn, says that he is a resident and householder within the State of California and the Northern District thereof, and that he is worth the sum of Sixty Thousand and no/100 Dollars ($60,000.00) over and above all his just debts and liabilities, exclusive of property exempt from execution.

S. D. BECHTEL

Subscribed and sworn to before me this 23rd day of November, 1938.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires: December 8, 1938. [297]

State of California,
City and County of San Francisco.—ss.

K. K. Bechtel, one of the sureties named in and who executed the foregoing undertaking, being duly sworn, says that he is a resident and householder within the State of California and the Northern District thereof, and that he is worth the sum of Sixty Thousand and no/100 Dollars ($60,000.00) over and above all his just debts and liabilities, exclusive of property exempt from execution.

K. K. BECHTEL

Subscribed and sworn to before me this 23rd day of November, 1938.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires: December 8, 1938. [298]

State of California,
City and County of San Francisco.—ss.

W. A. Bechtel, Jr., one of the sureties named in and who executed the foregoing undertaking, being duly sworn says that he is a resident and householder within the State of California and the North-

ern District thereof, and that he is worth the sum of Sixty Thousand and no/100 Dollars ($60,000.00) over and above all his just debts and liabilities, exclusive of property exempt from execution.

W. A. BECHTEL, JR.

Subscribed and sworn to before me this 23rd day of November, 1938.

[Notarial Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires: December 8, 1938.

[Endorsed]: Filed Nov. 25, 1938. [299]

[Title of District Court and Cause.]

APPELLANTS' DESIGNATION OF CONTENTS OF RECORD ON APPEAL. [300]

To the Appellee above-named and Messrs. Archibald B. Tinning and T. P. Wittschen, its Attorneys, and to the Clerk of the above-entitled Court:

You will please take notice that appellants above-named have filed notice of appeal to the Circuit Court of Appeals for the Ninth Circuit from the judgment entered in the above-entitled action on September 27, 1938, and pursuant to Rule 75 of the Federal Rules of Civil Procedure do designate for inclusion in the record on appeal the complete record and all the proceedings and evidence in the action.

Dated: San Francisco, California, November 25, 1938.

PAUL S. MARRIN
THELEN & MARRIN
DeLANCEY C. SMITH
EUGENE E. TREFETHEN
1000 Balfour Building,
351 California Street,
San Francisco, California.
JEWELL ALEXANDER
REDMAN, ALEXANDER & BACON
315 Montgomery Street,
San Francisco, California.
Attorneys for Appellants.

Due service of the above hereby admitted this 25th day of November, 1938.

ARCHIBALD B. TINNING
T. P. WITTSCHEN
Attorneys for Appellees.

[Endorsed]: Filed Nov. 25, 1938. [301]

[Title of District Court and Cause.]

STIPULATION CONCERNING PREPARATION OF RECORD ON APPEAL. [302]

Is Is Stipulated by and between the appellants above-named and the appellee above-named, as follows:

1. That the copy of the Reporter's Transcript now on file with the Clerk of the above-entitled court

may be delivered by him to the Clerk of the Circuit Court of Appeals for the Ninth Circuit for use in preparation of the record on appeal in that court in the above-entitled case.

2. That all of the original papers and exhibits included in the record or files of the above-entitled case may be sent to the Clerk of the United States Circuit Court of Appeals for the Ninth Circuit for use in the appeal in the above-entitled cause.

3. That upon the conclusion of all proceedings on appeal it shall be obligatory upon the appellants to deliver to the Clerk of the above-entitled court a true copy of the Reporter's Transcript now on file with the Clerk of the above-entitled court.

4. That the above-entitled court may make its order without further notice to the parties hereto to carry out the terms and conditions of this stipulation.

Dated: San Francisco, California, November 22nd, 1938.

PAUL S. MARRIN
THELEN & MARRIN
DeLANCEY C. SMITH
EUGENE E. THEFETHEN
1000 Balfour Building
351 California Street
San Francisco, California.
Attorneys for Appellant
Six Companies of California. [303]

JEWELL ALEXANDER
REDMAN, ALEXANDER & BACON
315 Montgomery Street
San Francisco, California
Attorneys for Appellants other than
Six Companies of California.

ARCHIBALD B. TINNING
T. P. WITTSCHEN
924 Main Street
Martinez, California
Attorneys for Appellee.

[Endorsed]: Filed Dec. 20, 1938. [304]

[Title of District Court and Cause.]

ORDER DIRECTING CLERK TO SEND CERTAIN DOCUMENTS AND EXHIBITS TO CIRCUIT COURT OF APPEALS [305]

Upon reading and filing the stipulation dated November 22nd, 1938, between the appellants and appellee above-named, and good cause appearing therefor, comes now the Court and

Orders and directs that the Clerk of the above-entitled court shall transmit and deliver to the Clerk of the Circuit Court of Appeals for the Ninth Circuit the following:

(a) Copy of the Reporter's Transcript now on file with said Clerk;

(b) All original papers and exhibits in the above-entitled case.

It is further ordered that upon the conclusion of all proceedings on appeal, appellant shall deliver to the Clerk of this court a true copy of the Reporter's Transcript of the proceedings at the trial of the above-entitled case.

Dated: San Francisco, California, December 20th, 1938.

MICHAEL J. ROCHE
Judge of the United States District Court

[Endorsed]: Filed Dec. 20, 1938. [306]

[Title of District Court and Cause.]

STIPULATION THAT COURT MAY EXTEND TIME FOR FILING THE RECORD ON APPEAL AND DOCKETING THE ACTION

It is hereby stipulated by and between the parties to the above entitled action that the District Court may make its order extending the time for filing the record on appeal and docketing the above entitled action with the United States Circuit Court of Appeals for the Ninth Circuit, [307] to and including February 21, 1939.

Dated: San Francisco, California, December 20, 1938.

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Attorneys for Appellee

[Endorsed]: Filed Dec. 20, 1938. [308]

[Title of District Court and Cause.]

ORDER EXTENDING THE TIME FOR FILING THE RECORD ON APPEAL AND DOCKETING THE ACTION

Good cause appearing therefor, it is hereby ordered that the time for filing the record on appeal and docketing the above entitled action with the United States Circuit Court of Appeals for the

Ninth Circuit be, and the same is hereby, extended to and including February 21, 1939.

Dated: San Francisco, California, December 20th, 1938.

MICHAEL J. ROCHE
District Judge

[Endorsed]: Filed Dec. 20, 1938. Walter B. Maling, Clerk, By ....., Deputy Clerk.

[Endorsed]: Filed Dec. 22, 1938. Paul P. O'Brien, Clerk.

[Endorsed]: Re-filed Feb. 23, 1939. Paul P. O'Brien, Clerk.

[Title of District Court and Cause.]

STIPULATION DESIGNATING THE PARTS OF THE RECORD, PROCEEDINGS AND EVIDENCE TO BE INCLUDED IN THE RECORD ON APPEAL

It is hereby stipulated by and between the parties to the above entitled action that there shall be included in the record on the appeal by appellants to the United States Circuit Court of Appeals for the Ninth Circuit from the judgment of the United States District Court in said action the following:

1. Complaint.
2. Answer and cross-complaint.
3. Answer of plaintiff and cross-defendants to cross-complaint. [338]

4. Answer of all cross-defendants other than plaintiff to cross-complaint.

5. Stipulation waiving trial by jury.

6. Amendment to complaint.

7. Amendment to plaintiff's answer to cross-complaint.

8. Amendment to cross-defendants' answer, other than plaintiff, to cross-complainant.

9. Reporter's transcript of evidence and proceedings at the trial.

10. All of the exhibits introduced by plaintiff in evidence at the trial, being exhibits Nos. 1 to 100, both inclusive.

11. All of the exhibits introduced by defendant in evidence at the trial, being exhibits lettered and numbered A to X-116, both inclusive.

12. Motion of defendant for judgment on the complaint and for special findings of fact and conclusions of law as same appears in the reporter's transcript of proceedings at the trial.

13. Motion of plaintiff for judgment on the complaint and for special findings of fact and conclusions of law as the same appears in the reporter's transcript of the proceedings at the trial.

14. Clerk's minute order of May 27, 1938, made in this case (Minute Book 51, p. 565).

15. Order granting motion for judgment on complaint in favor of defendant.

16. Clerk's minute order of May 31, 1938, made in this case (Minute Book 51, p. 568, et seq.).

17. Motion by cross-defendants to dismiss cross-complaint as same appears in the reporter's transcript of proceedings at the trial.

18. Order denying motion to dismiss cross-complaint.

19. Order granting motion to dismiss cross-complaint as to cross-defendants Fireman's Fund Indemnity Company and Pacific Indemnity Company.

20. Clerk's minute order of June 1, 1938, made in this case (Minute Book 51, p. 570).

21. Order granting motion to amend cross-complaint on face.

22. Dismissal of cross-complaint as to Fireman's Fund Indemnity Company and Pacific Indemnity Company. [339]

23. Motion of plaintiff for judgment and special findings of fact and conclusions of law on cross-complaint as same appears in the reporter's transcript of proceedings at the trial.

24. Motion of plaintiff for judgment and special findings of fact and conclusions of law on counter claims as same appears in the reporter's transcript of proceedings at the trial.

25. Motion of cross-defendants other than plaintiff for judgment and special findings of fact and conclusions of law on cross-complaint as same appears in the reporter's transcript of proceedings at the trial.

26. Motion of defendant for judgment and special findings of fact and conclusions of law on cross-

complaint as same appears in the reporter's transcript of proceedings at the trial.

27. Clerk's minute order of June 2, 1938, made in this case (Minute Book 51, p. 571, et. seq.).

28. Stipulation and order for amending answer and cross-complaint.

29. Clerk's minute order of August 8, 1938, made in this case (Minute Book 51, p. 655).

30. Opinion of the Judge of the District Court.

31. Defendant's requested findings of fact and conclusions of law.

32. Stipulation and order extending time of plaintiff and cross-defendants to submit findings of fact and conclusions of law and proposed amendments to defendant's requested findings of fact and conclusions of law.

33. Plaintiff's and cross-defendant's objections and amendments to defendant's requested findings of fact and conclusions of law and plaintiff's and cross-defendant's requested findings of fact and conclusions of law.

34. Findings of fact and conclusions of law. This is the same document described under 31 hereinabove.

35. Judgment.

36. Notice of entry of judgment prepared and served by the Clerk on September 27, 1938, and proof of service. [340]

37. Defendant and cross-complainant's notice of entry of judgment and proof of service, filed on or about September 30, 1938.

38. Notice of appeal dated November 25, 1938, and filed November 25, 1938.

39. Clerk's notice that notice of appeal was filed by plaintiff and cross-defendants on November 25, 1938, dated same date.

40. Supersedeas bond.

41. Appellant's designation of contents of record on appeal.

42. Stipulation that District Court may order all original papers and exhibits sent to the United States Circuit Court of Appeals for the Ninth Circuit.

43. Order of District Court that all original papers and exhibits be sent to the United States Circuit Court of Appeals for the Ninth Circuit.

44. Stipulation that District Court may extend time for filing and docketing record on appeal with the United States Circuit Court of Appeals for the Ninth Circuit to and including February 21, 1939.

45. Order of District Court extending time for filing and docketing record on appeal with the United States Circuit Court of Appeals for the Ninth Circuit to and including February 21, 1939.

46. Stipulation for correction of errors in reporter's transcript and order of Court directing such correction of errors.

47. This stipulation as to contents of record on appeal.

48. Clerk's certificate.

It is hereby stipulated that the record on appeal prepared in accordance with this stipulation will be

a full and complete record of all of the proceedings and evidence in the above entitled action and that such record shall constitute full and complete compliance with the law and the rules of Civil Procedure of the District Courts of the United States, and the Clerk of this Court is hereby requested to prepare, certify and transmit to and file in the United States Circuit Court of Appeals for the Ninth [341] Circuit a transcript of record in this cause in accordance with this stipulation.

Dated: January 30, 1939.

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Attorneys for Appellee.

[Endorsed]: Filed Feb. 2, 1939. [342]

[Title of District Court.]

CERTIFICATE OF CLERK TO TRANSCRIPT OF RECORD ON APPEAL.

I, Walter B. Maling, Clerk of the United States District Court, for the Northern District of California, do hereby certify that the foregoing 342 pages, numbered from 1 to 342, inclusive, and Volume II, with pages numbered from 1 to 1879, inclusive, contain a full, true, and correct transcript of the records and proceedings in the case of Six Companies of California, a corporation, et al., vs. Joint Highway District No. 13 of the State of California, a public corporation, No. 20101-R, as the same now remain on file and of record in my office.

I further certify that the cost of preparing and certifying the foregoing transcript of record on appeal is the sum of $47.75, and that the said amount has been paid to me by the Attorneys for the appellants herein.

In Witness Whereof, I have hereunto set my hand and affixed the seal of said District Court, this 7th day of February A. D. 1939.

[Seal] WALTER B. MANNING,
Clerk.

B. E. O'HARA,
Deputy Clerk. [343]

In the United States Circuit Court of Appeals for the Ninth Circuit

Civil Action,

File Number 9113

SIX COMPANIES OF CALIFORNIA, a corporation, et al.,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

APPELLANTS' CONCISE STATEMENT OF POINTS ON WHICH THEY INTEND TO RELY ON APPEAL AND DESIGNATION OF PARTS OF RECORD APPELLANTS THINK NECESSARY FOR THE CONSIDERATION OF SUCH POINTS.

Pursuant to the provisions of paragraph 6 of Rule 19 of the Rules of this court, appellants above named file this as a concise statement of the points on which they and each of them intend to rely on this appeal, and designate the following mentioned parts of the record which appellants think are necessary for the consideration of such points.

1. The District Court erred in ruling that plaintiff was not entitled to rescind the contract between plaintiff and defendant upon the ground

that plaintiff was entitled to an extension of time within which to perform the contract, and the denial of such extension by defendant, and the deduction of a penalty of Five Hundred Dollars ($500) per day commencing with the 25th day of May, 1936, deprived plaintiff of money which it was entitled to receive under the contract, and failure to pay same constituted a breach of said contract, giving plaintiff a right to rescind same.

2. The District Court erred in ruling that plaintiff was not entitled to an extension of time within which to complete the work under the contract for the reason that unavoidable delay was caused in the performance of the contract over which the plaintiff had no control. This unavoidable delay entitled plaintiff to an extension of time beyond the 720 days provided in the contract for performance of same for not less than 300 days additional within which to complete the work; and was caused by

(a) Slides in the excavation outside of the West Portal;

(b) Unstable ground conditions and other difficulties in excavating the West Portal section of the tunnels;

(c) Difficulty in placing concrete lining under instructions of the Engineer of defendant in the West Portal sections;

(d) Treacherous and unstable ground conditions requiring stoppage of excavation in August, 1935;

(e) Falling in of portion of excavated section of tunnel on August 28, 1935, and stoppage of work under orders of the Industrial Accident Commission of the State of California as a result of same;

(f) Falling in of portion of excavated section of tunnels on February 22, 1936, and orders of the Industrial Accident Commission of the State of California resulting therefrom which stopped work;

(g) Ground conditions encountered throughout progress of the excavation which required artificial support of same, and increased work over amount necessary to be done in the event ground had been self-supporting;

(h) Stormy and inclement weather.

3. The District Court erred in ruling that plaintiff was not entitled as a matter of right to an extension of time under the provisions of the contract for delays caused in the performance of the work by stormy or inclement weather.

4. The District Court erred in ruling that plaintiff was not entitled to an extension of time for unavoidable delays, as set forth above in paragraph 2 of these points, in performance of the contract which obligated the defendant to grant plaintiff an extension of time for same.

5. The District Court erred in refusing to rule that the action of the Board of Directors of defendant in refusing to extend the time of plaintiff

within which to perform the work under said contract between plaintiff and defendant was arbitrary, capricious, fraudulent and void and that notwithstanding said refusal plaintiff was entitled to an extension of time for the reasons set forth under point 2 hereof sufficient to enable it to complete all the work under said contract.

6. The District Court erred in refusing to rule that the action of the District Engineer of defendant in failing to certify to the Board of Directors of defendant that, in his judgment, there were reasons which had unavoidably delayed the work of plaintiff under said contract between plaintiff and defendant and in stating to said Board that there were no such reasons, and his said actions were known by the Board of Directors of defendant to be so arbitrary, capricious and grossly mistaken as to amount to fraud and amounted to a complete failure of said Engineer to carry out and perform his duties under said contract to exercise a fair and impartial judgment in said matter.

7. The District Court erred in ruling that plaintiff did not have the right to rescind the contract between plaintiff and defendant because of the misrepresentation by defendant to plaintiff, prior to the execution of the contract between plaintiff and defendant, of the ground conditions through which the tunnels to be constructed under said contract were to be driven and by which misrepresentations defendant represented to plaintiff that said ground

conditions would be much more favorable for the construction of said tunnels than they actually were. The District Court erred in ruling that said misrepresentations did not amount to fraud on the part of defendant which induced plaintiff to enter into said contract and in ruling that plaintiff did not have the right to rescind said contract because of said misrepresentations.

8. The District Court erred in ruling that said contract between plaintiff and defendant was not entered into under a mutual mistake of fact as to the condition of the ground through which the tunnels to be constructed under said contract were to be driven which was so material that plaintiff had the right to rescind said contract.

9. The District Court erred in ruling that plaintiff waived its right to rescind said contract because of the failure of defendant to make the progress payments provided therein to be made.

10. The District Court erred in ruling that plaintiff waived its right to rescind said contract because of the misrepresentations by defendant as to the ground conditions through which the tunnels provided in said contract to be constructed were to be driven.

11. The District Court erred in ruling that plaintiff waived its right to rescind said contract because the same was entered into under a mutual mistake of fact as to the ground conditions through which the tunnels to be constructed under said

contract were to be driven.

12. The District Court erred in ruling that, under said contract between plaintiff and defendant, plaintiff was not entitled as of right to an extension of time within which to complete the work under said contract.

13. The District Court erred in refusing to rule that defendant breached its said contract with plaintiff by failing to cause its engineer to set sufficient points to line and grade for plaintiff to work to in performing the work under said contract and in refusing to rule that because of said breach plaintiff was entitled to rescind said contract.

14. The District Court erred in ruling that plaintiff did not have a right to rescind the contract for the failure and refusal of defendant to make the progress payments to plaintiff under said contract when and as due and because defendant asserted and exercised the alleged right to deduct agreed or liquidated damages from such payments for the following reasons:

Defendant, by the geological report, contract, plans and specifications and by exhibiting to plaintiff test drifts and test pits, represented to plaintiff and warranted to plaintiff, that the ground through which the tunnels were to be constructed would, for the most part, be self-supporting, that only temporary removable timber, if any, would be required and that methods of construction could be employed suitable to self-supporting ground and

which would enable plaintiff to complete the work within 720 days after the execution of the contract.

Said representations were false and untrue. They misled plaintiff as to the methods and procedure which could be employed in performing the work of excavating the tunnels and resulted in serious delay to the work.

Defendant further delayed the work by ordering parts of it to be stopped or delayed and by the refusal of defendant and its Engineer to cooperate on a practical plan for proceeding with the work after the cave-in of August 28, 1935.

Defendant, by its own fault and through its own actions, having delayed the work, waived the provisions of the contract stipulating the time for completion thereof and all right to recover any agreed or liquidated damages for delay or to deduct the same from any progress payments due plaintiff and the deduction by defendant of any amounts from progress payments due plaintiff was wrongful and gave plaintiff the right to rescind the contract.

15. The District Court erred in striking out as evidence the geological report offered in evidence by plaintiff (Plaintiff's Exhibit 22). The defendant published notice inviting bids for the construction of its project, and invited and required the attention of prospective bidders to the specifications and plans on file with the District. These specifications in Section 32 under the heading of Tunnel Construction, by subsection 4 thereof, di-

rected attention of bidders to a geological report on the geological structures through which the tunnels would pass on file in the office of the District Engineer. Pursuant to this clause in the specifications, plaintiff examined this report and took a copy of same for use in connection with planning its bid on the work to be done in performance thereof if its bid was accepted. The undisputed testimony is that the plaintiff relied on the contents of this report in making its bid, and in forming its plans for the doing of the work, and in carrying out the work, until it was found that said report was erroneous.

The report was clearly admissible for the purpose of showing the proper reliance of plaintiff on the contents of same, and to establish that delay caused by the difference in the ground conditions met with from those predicted in the report was unavoidable to plaintiff and was competent, relevant and material evidence on the issues of fraud, mistake and the right of plaintiff to an extension of time.

16. The District Court erred in striking out as evidence the tracing made by the witness Calhoun of a profile map contained in Exhibit 22 offered by plaintiff and stricken out by the court (Plaintiff's Exhibit 23). This exhibit was offered by plaintiff through the witness Calhoun to show that when the witness examined the geological report at the office of the District Engineer he made a tracing, or exact copy, of a map contained in the report showing the

section of the work included in the tunnels, and that this tracing was later used by the plaintiff in connection with the geology report in making its bid and planning the doing of the work. It was admissible on the same ground as Exhibit 22 was admissible, and for the same reasons.

17. The District Court erred in granting the motion made by defendant to strike from the record exhibits 22 and 23 and certain evidence in connection therewith.

18. The District Court erred in the admission in evidence of defendant's Exhibit "F", which was a letter dated April 19, 1935, from C. H. Fry, Superintendent of Safety of the Industrial Accident Commission of the State of California to T. M. Price, Project Manager of the plaintiff, to which was attached a memorandum dated April 15, 1935, from F. L. Lowell to C. H. Fry. The letter purports to recite certain conversations said to have occurred before the plaintiff bid on the doing of the work involved in this case between C. H. Fry and Mr. Larson and Mr. Fontaine, and was not admissible because it was clearly hearsay and in no way binding upon the plaintiff, and because the parties to the alleged conversation mentioned in the letter were not called as witnesses to establish same.

19. The District Court erred in admitting as evidence defendant's Exhibit "WWW", being a letter dated March 4, 1936, from C. H. Sweetser, District Engineer of the United States Department

of Agriculture, to the District Engineer of defendant, with which letter was inclosed a memorandum dated February 4, 1936, from Thomas H. MacDonald, Chief of the Bureau of Public Roads of the United States Department of Agriculture to district engineers of the same department, which in turn transmitted and inclosed a copy of Administrative Order No. 54 (Supplement 1) of Federal Emergency Administration of Public Works, dated August 29, 1935, signed by Horatio B. Hackett, Assistant Administrator. The letter and the inclosures were clearly inadmissible. Same were offered through plaintiff's witness S. D. Bechtel on cross-examination and were inadmissible as not proper cross-examination, and as not binding on the plaintiff in any manner, and hearsay, and for other objections urged at the time.

20. The District Court erred in admitting into evidence as defendant's Exhibit "O-4" a copy of a grant agreement dated March 9, 1934, between defendant and the United States of America by which certain money was provided to be granted to the defendant district, but to which agreement the only parties were the defendant and the United States. This agreement was inadmissible because plaintiff was not a party to it, and had never seen it, and same was not binding on it, and it was incompetent, irrelevant, and immaterial, and was inadmissible for all the reasons given at the trial.

21. The District Court erred in the admission of

Exhibits "X-1 to X-116", inclusive, which were offered by the defendant as cross-complainant in support of the allegations of its cross-complaint. Each of same was inadmissible for the reason that the cross-complaint did not state a cause of action against the cross-defendants, and was prematurely filed, and all of the offered exhibits were inadmissible for these reasons.

22. The District Court erred in admitting in evidence, over the objection of plaintiff and cross-defendants, any evidence on the cross-complaint for the following reasons:

(1) The Court had no jurisdiction of the cross-complaint because at the time it was filed two of the cross-defendants were citizens of the same State as the cross-complainant.

(2) The cross-complaint does not state a cause of action because it is based on an alleged right to recover damages for abandonment of the work and such alleged right is based on, and governed by, the provisions of paragraph 5 of the contract and Section 6 (q) of the specifications and the cross-complaint shows on its face that the cross-complainant did not perform the conditions in said provisions of said contract which it was required to perform in order to maintain said action.

(3) The cross-complaint was prematurely filed and should have been dismissed on the motion of cross-defendants because it shows on its face that cross-complainant did not, prior to filing the same,

perform the conditions which it was required to perform under paragraph 5 of the contract and Section 6 (q) of the specifications prior to the commencement of any action based on an alleged abandonment by plaintiff of the work under the contract.

23. The District Court erred in admitting in evidence, over the objection of plaintiff and cross-defendants any evidence on the cross-complaint relating to agreed or liquidated damages for the further reason that the cross-complaint was based on an alleged cause of action for abandonment by plaintiff of the work and the contract properly construed, and particularly paragraph 5 thereof and Section 6 (q) of the specifications, defines and limits the damages in such case to the excess, if any, of the cost of completing the work over the contract price for completion thereof and does not provide for the payment, or recovery of any agreed or liquidated damages for delay.

24. The District Court erred in denying the motion of plaintiff and cross-defendants (Tr. pp. 1707 to 1709) to strike from the record the evidence referred to in said motion upon the grounds and for the reasons stated therein.

25. The District Court erred in making its findings of fact and conclusions of law in that it failed to find the facts specially and failed to discharge its duty to appropriately and specifically determine all of the issues of fact in the case, and the findings

of fact as drawn and signed by the court did not formulate and state the underlying facts in the case; further, the findings of fact as filed by the court were not made by the court, but were adopted by the court from findings prepared by counsel for the defendant; and the same are a partisan and unfair statement of conclusions, and not a finding of the underlying facts. Further, the court was obligated to make the findings itself and not through counsel.

26. The District Court erred in ruling that the plaintiff abandoned the contract between plaintiff and defendant, and the work to be done under the contract. This ruling is contained throughout the findings made by the court and contrary to the rulings requested of the court in the findings of fact requested by the plaintiff. It is erroneous in that the facts correctly found show that defendant improperly, and unjustly, and without legal right or authority deducted a penalty from money due plaintiff under the terms of the contract in a payment tendered to plaintiff by defendant on June 10, 1936, for work done during the month of May, 1936, by which tendered payment a penalty of $500 per day for May 25th to May 31st, inclusive, was deducted from the amount admittedly otherwise due plaintiff under the contract; and this payment having been tendered under a certificate by the District Engineer of defendant, same amounted to an irrevocable declaration by defendant that it would

continue to deduct $500 per day from the payments due plaintiff under the contract until the date when plaintiff actually completed the work, as defendant at the time well knew plaintiff would not actually complete the work until approximately the 3rd day of January, 1937, so that the deduction of $500 per day would result in a total deduction from money due plaintiff under the contract of $112,000. This constituted a breach of contract by the defendant, giving plaintiff the right to rescind the contract and stop work thereunder, and bring an action for the recovery of the reasonable value of the work done by plaintiff up to the time of such breach. The penalty was improperly deducted because plaintiff was entitled to an extension of time until a date well past the date when it was anticipated plaintiff would complete its work under the contract; and the ruling of the District Court was contrary to the facts and the law.

27. The District Court erred in ruling that the contract between plaintiff and defendant was executed on June 4, 1934, and the uncontradicted evidence shows that it was not executed by defendant until June 14, 1934.

28. The District Court erred in ruling that the contract provided that the work thereunder should be completed within 720 days after its execution. The contract provided that there should be added to the period of 720 days from the date of the execution of the contract by the Board of Directors of defendant the time during which the plaintiff was

delayed in the work by acts of God, or by stormy and inclement weather or by any reason which in the judgment of the District Engineer, unavoidably delayed the work. The work was unavoidably delayed for the times and on account of the causes set forth in point 2 hereinabove and under the terms of the contract such additional time was required to be added to said period of 720 days.

29. The District Court erred in ruling that defendant was ready, able, and willing to submit the right of the defendant to deduct $3,500.00 penalty for the month of May, 1936, from the amount delivered plaintiff on June 10, 1936, for work done during that month to the District Engineer for determination after that date. This ruling is found in subparagraph (1) of finding of fact XIV and elsewhere in the findings made by the court, and is erroneous in that the District Engineer had already deducted the penalty, made his decision and certified the amount due plaintiff to defendant, and no longer had any power to act in connection with the matter, as the contract by its terms provided that no extension of time could be given to the plaintiff to perform same after the expiration of the time originally fixed in the contract for its completion, but such extension must be given prior to that date.

30. The District Court erred in ruling that plaintiff was requested by the District Engineer to specify reasons for its request, dated June 10, 1935, for extension of time to complete the contract.

This ruling is contrary to the uncontradicted evidence and is found in sub-paragraph 2 of finding of fact XIV, and is erroneous as there is no evidence whatever in the record to support it and because the overwhelming weight of the evidence is that the District Engineer advised plaintiff, prior to the 10th day of June, 1935, that it was entitled to an extension of time and the request for such extension made on that date was based upon such advice.

31. The District Court erred in ruling that plaintiff knew on May 14th, 1936, its request for extension of time, dated May 8, 1936, would be denied. This ruling is made in sub-paragraph 2 and 3 of finding of fact XIV and elsewhere in the findings made and adopted by the court, and is erroneous in that it is absolutely contrary to the uncontradicted evidence, which was that if defendant denied such request it would be without intention on the part of defendant to deduct any penalty from the amount of money due plaintiff under the contract.

32. The District Court erred in ruling that plaintiff did not comply with any request made by the District Engineer for itemization of its claims for unavoidable delays. This ruling was made in sub-paragraph 4 of finding of fact XIV and elsewhere in the findings made and adopted by the court. It was erroneous in that the uncontradicted evidence showed that plaintiff was requested by

the Engineer in January, 1936, and later in April, 1936, to refrain from presenting a detailed request for an extension of time, which request was followed upon the further representation and statement by the District Engineer that a sufficient time to enable the plaintiff to complete the work without a deduction of penalty from payments due it would be granted.

It is further erroneous in that the evidence is conclusive that plaintiff submitted to defendant in writing detailed statements of the causes which delayed the work and that these were discussed orally with the District Engineer many times and that he was thoroughly familiar with them. The evidence is also conclusive that at no time between the date of filing by plaintiff of a request for an extension of time and the denial thereof did defendant or the District Engineer request plaintiff to specify or itemize the reasons for the request.

It was further erroneous in that there is no evidence to support the finding that the defendant acted in good faith in denying an extension of time to plaintiff. On the other hand, the evidence shows conclusively that defendant denied such requested extension without a hearing, without any request to plaintiff to submit reasons for the requested extension, and with knowledge on the part of defendant and its Engineer that the work had been unavoidably delayed and the reasons therefor. Furthermore, the evidence is uncontradicted that plaintiff was

advised by defendant before the last application for an extension was made, and before it could possibly have been considered by the District Engineer, that it would be denied, if made.

33. The District Court erred in ruling that the contractor was not delayed in the work, and that any delays that occurred were because of the methods of work adpted by plaintiff. This ruling is contained in sub-paragraph 5 of finding of fact XIV and elsewhere in the findings made and adopted by the court, and is erroneous in that it is contrary to the overwhelming weight of the evidence.

34. The District Court erred in ruling that the defendant and its Engineer acted fairly and honestly in passing upon the question of whether the contractor had been delayed in the performance of same by act of God, by stormy or inclement weather, or by any reason which in the judgment of the District Engineer unavoidably delayed the work. This ruling was made in sub-paragraph 5 of finding of fact XIV and elsewhere in the findings made and adopted by the court, and was erroneous in that the overwhelming weight of the evidence showed that the District and its Engineer acted arbitrarily, capriciously, fraudulently, unfairly and contrary to the facts and express statements made by them in connection with the subject.

35. The District Court erred in ruling that the contract provided that plaintiff was obligated to perform the work covered by same within the time

and price fixed in the contract regardless of conditions which might be encountered; and that plaintiff knew the underground conditions which were encountered before the 1st of January, 1935. This ruling was made by the court in sub-paragraph 6 of finding of fact XIV, and elsewhere in the findings made and adopted by the court, and was erroneous in that same was absolutely contrary to the uncontradicted evidence presented at the trial; and is contrary to the predictions contained in the geological report and the contract, plans and specifications under which the work was bid upon and performed by plaintiff.

The statement in finding XIV, sub-paragraph (6), that the underground conditions were known to plaintiff prior to January 1, 1935, is not supported by any evidence in the record. The evidence is uncontradicted that on said date plaintiff had excavated only about 100 feet of tunnels, each of which was approximately 2900 feet long, and that the ground conditions in the unexcavated portions of the tunnels were absolutely unknown to plaintiff.

The statement that plaintiff, with full knowledge of ground conditions from almost the inception of the contract, continued with the work for more than one year without making any complaint that underground conditions were different from those anticipated is not supported by any evidence in the record. The uncontradicted evidence is that plaintiff did not acquire any true knowledge of ground con-

ditions except during the course of the excavation and that at the expiration of a year after the date of the contract only a few hundred feet had been excavated in each tunnel. The evidence is further uncontradicted that prior to the expiration of a year after the contract was made plaintiff complained of the difference in the ground conditions.

The statement in this finding that defendant at no time made any misrepresentations to plaintiff is contrary to the evidence, which is conclusive that, prior to the submission of the bid by plaintiff, defendant furnished plaintiff with a geological report which misstated the ground conditions through which the tunnels were to be driven. Furthermore, the provisions of the plans and specifications relating to the construction of the tunnels were deceptive and misleading.

36. The District Court erred in ruling that the defendant furnished to plaintiff all the engineering work provided to be furnished in the contract between the parties. This ruling is contained in sub-paragraph 7 of finding of fact XIV, and elsewhere in the findings made and adopted by the court, and is erroneous in that the contract provided and the evidence showed such provision intended defendant was required to furnish to plaintiff lines and grades to work to, and that this was not done by defendant.

37. The District Court erred in ruling that plaintiff did not request the District Engineer to

pass upon the questions or matters stated in the notice of rescission served by plaintiff upon defendant. This ruling was made in sub-paragraph 8 of finding of fact XIV, and elsewhere in the findings made and adopted by the court, and is erroneous in that the overwhelming weight of the evidence showed that plaintiff repeatedly requested the District Engineer to pass upon all of the matters involved, and as to many of same the Engineer stated he agreed with the demands and position of plaintiff in connection therewith, thereby waiving any requirement that plaintiff make further demand upon him regarding the same.

38. The District Court erred in ruling that plaintiff had waived any right it ever had to rescind the contract. This ruling is made in sub-paragraph 9 of finding of fact XIV, and elsewhere in the findings made and adopted by the court, and is erroneous in that same is contrary to the overwhelming weight of the evidence, which shows that plaintiff promptly rescinded the contract after it was first notified progress payments due to it would not be made in accordance with the terms of the contract, but on the contrary, same would be reduced by $500.00 per day, deducted for penalty for failure to complete the work under the contract prior to May 24, 1936.

39. The District Court erred in ruling that plaintiff was obligated to obtain the consent of the Engineer before doing any work which was done by it

and involved in its claims in this case, which was in excess of the amount or price for the work fixed in the contract. This ruling was made in finding of fact XV, and elsewhere in the findings made and adopted by the court, and is erroneous in that same is contrary to the proper interpretation of the contract, which did not require any such authority from the District Engineer.

Furthermore, finding of fact XV is directly contrary to the evidence in the record which is uncontradicted that on many occasions plaintiff objected, both orally and in writing, that the work it was being required to perform was different from that represented by defendant to plaintiff and described in the contract.

40. The District Court erred in ruling that the contract between the parties was entered into on the 4th day of June, 1934. This ruling was made in finding of fact XVIII, made and adopted by the court, and is erroneous in that under the applicable law the contract was not entered into until the 14th day of June, 1934.

41. The District Court erred in ruling that plaintiff did not perform any other work for defendant than the work specified in the contract between the parties. This ruling was made in finding of fact XXI, and elsewhere in the findings made and adopted by the court, and is erroneous because the overwhelming weight of the evidence shows that plaintiff performed approximately twice as much work for defendant in the construction in the tun-

nels as the amount specified for same in the contract.

42. The District Court erred in ruling that plaintiff was not entitled to judgment against defendant. This ruling is contained in paragraph 1 of conclusions of law made and adopted by the court, and is erroneous for the reasons set forth in this statement of points relied on by appellants next preceding the statement of this point, and for each and all of said reasons; and for the further reason that the uncontradicted evidence in the case, and the overwhelming weight of the evidence required that the court rule that plaintiff was entitled to judgment against defendant in accordance with the prayer of the complaint because of the breach of said contract made by defendant as set forth in the foregoing statement of points.

43. The District Court erred in ruling that defendant was entitled to judgment against plaintiff on the complaint and the answer thereto, as such ruling was without evidentiary support and each and all findings of fact made by the court and which are hereinabove mentioned in this statement of points on which appellants will rely are without evidentiary support or are contrary to the overwhelming weight of the evidence.

44. The District Court erred in failing to dismiss the cross-complaint for the reason that same did not state a cause of action against any of the cross-defendants.

45. The District Court erred in giving judgment for any amount whatever in favor of defendant on its cross-complaint. This ruling is found in conclusions of law 2, 4 and 5 made and adopted by the court; and is erroneous in that the cross-complaint was prematurely filed as the contract between plaintiff and defendant did not permit the doing of the work except by the forces of the defendant itself in the event that the defendant was required for any reason to complete same; and because no notification had been given by defendant to any of the cross-defendants of the amount of its claim after it completed the work and before commencing action, or of any balance due for same.

46. The District Court erred in ruling that cross-defendants were obligated to pay defendant and cross-complainant under the terms of the contract any sum whatever per day as liquidated damages. This ruling was made in findings of fact XXXIII, XXXIV, XXXV and XXXVI, and elsewhere in the findings made and adopted by the court, and is erroneous in that there is no authority in fact or in law in this case for assessment of liquidated damages against the cross-defendants because same cannot be assessed in this case as they are contrary to the provisions of the contract which contains a specific method to determine any loss occasioned by defendant and cross-complainant in the event it did any portion of the work.

Finding of fact XXXV is not supported by the evidence which is uncontradicted that, if defendant

were entitled to recover at all, any damages suffered from delay in completing the work can be readily and easily ascertained.

47. The District Court erred in ruling that plaintiff did not rely upon the representations contained in geological report in forming its bid, and that defendant made no representations to plaintiff by means of any geological report in making its bid. This ruling was made in finding of fact XXXIX, and elsewhere in the findings made and adopted by the court, and is erroneous in that same is unsupported by any evidence and is contrary to the uncontradicted testimony.

48. The District Court erred in ruling that defendant did not represent by the plans or the specifications or any geological report that the tunnels would be driven through self-supporting ground for any percent of their total length, or could be constructed with the use of temporary timber support for the excavation of same, and that defendant made no representations in this particular. This ruling was made in finding of fact XL, and elsewhere in the findings made and adopted by the court, and is erroneous in that same is not supported by any evidence and is contrary to the uncontradicted testimony in the case.

49. The District Court erred in ruling that plaintiff performed any of the work under the contract in the construction of the tunnels without belief in any representations made by defendant

except those in the notice to bidders, contract, plans and specifications. This ruling was made in finding of fact XLI, and elsewhere in the findings made and adopted by the court, and is erroneous in that same is without any support in the evidence and is contrary to the uncontradicted testimony in the case.

50. The District Court erred in ruling that all expenditures by plaintiff in performance of the work were pursuant to and required under the contract, and that plaintiff spent nothing by reason of false representations by defendant. This ruling was made in finding of fact XLII, and elsewhere in the findings made and adopted by the court, and is erroneous in that same is contrary to the evidence in the case, and is without support in the evidence, which affirmatively shows that plaintiff expended twice as much money as would have been required to have been expended if the conditions had been as represented by the defendant.

51. The District Court erred in finding that plaintiff was not required to do work different from that and in excess of that required under the contract in constructing the tunnels by reason of misrepresentations of underground conditions by the defendant. This ruling was made in findings of fact XLIV and XLV, and elsewhere in the findings made and adopted by the court, and was erroneous in that same is contrary to the evidence in the case, and the uncontradicted testimony to the effect

that plaintiff performed approximately twice as much work as would have been required if the tunnels had been through ground of the character represented and predicted in the contract, plans and specifications, and geological report.

52. The District Court erred in ruling that plaintiff was not called upon to do radically different work from that required under the contract under the conditions as represented to plaintiff by defendant. This ruling was made by the court in finding of fact XLVIII, and elsewhere in the findings and is erroneous in that same is contrary to the evidence, and without evidentiary support.

53. The District Court erred in making finding of fact XLIX because same is contrary to the evidence in the case, which evidence is uncontradicted and establishes that plaintiff was unavoidably delayed in the performance of the work, as hereinabove stated in this statement of points, and that none of said delays were caused by the acts of the plaintiff, and that the District Engineer and the defendant knew of the causes of the delay to plaintiff, but nevertheless said District Engineer and defendant fraudulently and capriciously and arbitrarily, and contrary to the contract provisions and the law, denied plaintiff any extension of time, although repeatedly requested to grant same, and although said District Engineer repeatedly promised he would recommend the grant of same.

54. The District Court erred in ruling that plaintiff was not mistaken as to the true condition

of the ground through which the tunnels were driven. This ruling was made in finding of fact L, and elsewhere in the findings made and adopted by the court, and is erroneous in that same is without evidentiary support and is contrary to the uncontradicted evidence in the case.

55. The District Court erred in rendering any judgment whatever on the cross-complaint against the cross-defendants based upon any delay in completion of the work. This ruling is found in paragraph 2 of conclusions of law made and adopted by the court, which are based upon findings of fact XXXIII, XXXIV, XXXV and XXXVI, made and adopted by the court, and is erroneous in that there was no proof whatever that cross-complainant sustained any damage by any delay in completion of the work.

56. The District Court erred in denying the request or motion of plaintiff and all the cross-defendants to make the amendments and alterations proposed by plaintiff and cross-defendants to defendant's proposed findings of fact and conclusions of law.

57. The District Court erred in denying the motion of plaintiff and all the cross-defendants to make the findings of fact and conclusions of law requested by plaintiff and cross-defendants. Said findings of fact which plaintiff and cross-defendants requested the Court to make are all supported by the uncontradicted evidence and were a correct, complete and accurate statement of the ultimate

facts proved by the uncontradicted evidence in the record and were and are material and necessary to a correct decision on the issues in the case.

The findings made by the court, in addition to being erroneous for the reasons hereinbefore stated in these points and being, in the main, mere conclusions, do not contain any finding at all on many of the ultimate facts necessary to a correct decision of the issues and are inadequate, incomplete and insufficient to comply with law and the rules governing the making of findings of fact.

The conclusions of law requested by plaintiff and cross-defendants are correct statements of the proper legal conclusions which the court should have made on proper and correct findings of the ultimate facts proved by the uncontradicted evidence in the record.

58. The District Court erred in denying the motion of the cross-defendants to dismiss the cross-complaint. Said cross-complaint did not state a cause of action against any of the cross-defendants because the cross-complaint is based on the claim that plaintiff abandoned the work under the contract and, under the terms of the contract and particularly under the provisions of paragraph numbered 5 thereof, on page 4, and the provisions of Section 6 (q) of the specifications, defendant was required, in case of abandonment of the work under the contract, to complete it with its own forces prior to any liability arising on the part of plaintiff or the other cross-defendants to pay the excess, if

any, of the cost of completing the work over the price stipulated in the contract between plaintiff and defendant for doing the uncompleted work. The undisputed evidence shows that defendant never completed the work with its own forces and that the event never occurred which gave rise to a cause of action in favor of defendant and against the cross-defendants, or any of them.

59. The District Court erred in denying the motion of cross-defendants to dismiss the cross-complaint on the ground that the Court did not have jurisdiction of the parties thereto. The pleadings show, and it is undisputed, that when the cross-complaint was filed defendant and cross-complainant was a resident and citizen of California and that two of the cross-defendants, namely, Fireman's Fund Indemnity Company and Pacific Indemnity Company, were residents and citizens of California. The Court, therefore, had no jurisdiction to entertain the cross-complaint and as jurisdiction did not exist when the cross-complaint was filed, it was not acquired by dismissing these two defendants during the course of the trial and in dismissing those two cross-defendants the District Court erred.

60. The District Court erred in denying the motion of cross-defendants to dismiss the cross-complaint on the ground that it was prematurely filed for the following reasons:

(1) The cross-complaint was based on the alleged right of cross-complainant to recover the excess cost of completing the work over the price

therefor stated in the contract between plaintiff and defendant because of an alleged abandonment of the work by plaintiff. The right of cross-complainant to recover in such case is based on the provisions of paragraph numbered 5 of the contract, on page 4, and the provisions of Section 6 (q) of the specifications and is limited thereby.

Under said provisions no right to recover any excess in cost arose until cross-defendant both completed the work and notified cross-defendants of such excess cost. The undisputed evidence shows that cross-complainant had not completed the work when it filed the cross-complaint and there is no evidence whatever that it ever notified any of the cross-defendants that the cost to cross-complainant of completing the work exceeded the contract price for completing it or that there was any such excess cost or that there was any demand for payment thereof.

(2) At the time the cross-complaint was filed the District Engineer had made no final estimate of the sum which would have been payable under the contract between plaintiff and defendant as required by Section 6 (q) of the specifications.

61. The District Court erred in including in the judgment on the cross-complaint any amount for liquidated damages, for the following reasons:

(1) The cross-complaint is based on the theory that plaintiff abandoned the contract. Section 4 (d) of the contract is not applicable as the measure of damages on such a cause of action. The contract

contains specific provisions for measuring and limiting the damages for abandonment. Those provisions are paragraph numbered 5 of the contract and Section 6 (q) of the specifications. Under those provisions the amount which cross-complainant is entitled to recover in case of abandonment is the excess of the cost of completing the work over the contract price and no more.

(2) Aside from the foregoing provisions of the contract specifically stating the measure of damages in case of abandonment the rule of law is well settled that provisions for liquidated damages for delay in performance such as those contained in Section 4 (d) of the contract do not constitute the measure of damages for delay in case of abandonment but that in such cases, no damages can be recovered for delay except such actual damages as are proved. Cross-complainant did not prove any actual damages from delay.

(3) Provisions in contracts stipulating liquidated or agreed damages for delay are void unless it would be impracticable or extremely difficult to fix the actual damages. Section 4 (d) of this contract is void because, if cross-complainant here suffered any actual damage from delay the amount thereof could have been easily fixed.

(4) The stipulated amount of damages in Section 4 (d) of the contract was so grossly disproportionate to any actual damages suffered by cross-complainant from delay that it constituted a penalty and said Section 4 (d) is void for that reason.

62. The District Court erred in denying the motions of plaintiff and cross-defendants for judgment on the complaint, cross-complaint and counterclaim of defendant.

63. The District Court erred in granting the motions of defendant for judgment on the complaint and cross-complaint.

64. Plaintiff and cross-defendants duly excepted to all of the rulings of the District Court hereinbefore mentioned and stated to have been erroneously made and appellants, in addition to all other points hereinbefore stated, will rely on appeal on each of such exceptions so made.

Appellants hereby designate as the parts of the record which they think are necessary for the consideration of such points, the following:

(1) All of the evidence and proceedings which the parties have stipulated and agreed, in a stipulation, dated February 21, 1939, and filed with the above entitled court, shall be printed or reproduced in the printed record.

(2) The agreed statements of fact included in, and attached to, said stipulation.

(3) All the exhibits which the parties hereto have, in said stipulation, stipulated and agreed need not be included in the printed record, because by their nature or character it is impossible or impracticable to include the same therein, but which have been sent to the above entitled court by the District Court for its inspection and use on the ap-

peal, and which the parties have stipulated and agreed in said stipulation may be so used.

Dated: February 21, 1939.

PAUL S. MARRIN,
THELEN & MARRIN,
DeLANCEY C. SMITH,
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San Francisco, California.
Attorneys for Appellants.

Receipt of a copy of the foregoing appellants' concise statement of points on which they intend to rely on appeal and designation of parts of record appellants think necessary for the consideration of such points is hereby acknowledged this 21st day of February, 1939.

ARCHIBALD B. TINNING,
T. P. WITTSCHEN,
924 Main Street,
Martinez, California.
Attorneys for Appellee.

[Endorsed]: Filed February 21, 1939. Paul P. O'Brien, Clerk.

[Title of Circuit Court of Appeals and Cause.]

STIPULATION DESIGNATING PARTS OF THE RECORD TO BE PRINTED.

It is hereby stipulated by and between the parties to the above entitled action that those parts of the record on appeal hereinafter designated be printed, or in case of photographs and drawings, reproduced and included in the printed record, and the Clerk of the above entitled court is requested to cause to be printed and reproduced in the printed record those parts of the record which the parties hereby designate as follows:

1. Complaint. R. P. 1.
2. Answer and cross-complaint. R. P. 5.
3. Answer of plaintiff and cross-defendant Six Companies of California to cross-complaint. R. P. 54. (Note: Exhibit A to the cross-complaint is a copy of Exhibit No. 18 which it is hereinafter stipulated shall be printed and for that reason said Exhibit A need not be printed.)
4. Answer of all cross-defendants other than plaintiff to cross-complaint. R. P. 76.
5. Stipulation waiving trial by jury. R. P. 98.
6. Amendment to complaint. R. P. 100.
7. Amendment to plaintiff's answer to cross-complaint. R. P. 104.
8. Amendment to cross-defendants', other than plaintiff, answer to cross-complaint. R. P. 108.
9. The following parts of the reporter's transcript of evidence and proceedings at the trial: Volume 2.

(1) Omit all of pages 1 to 100, both inclusive.

(2) Include all of the proceedings and evidence reported on pages 101 to 1543, line 18, both inclusive.

(3) Omit commencing with the words, "Now, if your Honor please," line 19, page 1543, to page 1556, lines 1 and 2, inclusive.

(4) Insert following line 18, page 1543, the following agreed statement:
"Here follows the argument of Mr. Alexander in support of his motion which has been omitted by stipulation."

(5) Include all of the proceedings and evidence reported on page 1556, commencing with line 3, the words "Mr. Smith," all the remainder of that page and all of page 1557.

(6) Omit page 1558, line 1, to page 1562, line 3, both inclusive.

(7) Include page 1562, beginning with line 4, and the words "Mr. Smith," to page 1568, line 25, both inclusive.

(8) Insert following line 25, page 1568, the following agreed statement:
"Here follows the argument of Mr. Smith in support of his motion and the argument of Mr. Wittschen for defendant and cross-complainant in reply to the arguments of Mr. Alexander and

Mr. Smith, which arguments have been omitted by stipulation."

(9) Omit page 1568, beginning with the words "Now, in supplementing" in line 26, to page 1617, line 5, both inclusive.

(10) Include commencing line 6, page 1617, with the words "The Court," all the balance of that page and all of pages 1618 and 1619.

(11) Include all of pages 1620 to 1729, line 2.

(12) Omit the balance of page 1729 commencing with the words "The Court," in line 3, to the end of line 10, page 1827, both inclusive.

(13) Insert following line 2, page 1729, the following agreed statement:

"Here follows the arguments of Mr. Wittschen for defendant and cross-complainant, the argument of Mr. Marrin for plaintiff, and the argument of Mr. Alexander for the cross-defendant surety companies, which arguments have been omitted by stipulation."

(14) Insert the following agreed statement and parts of the reporter's transcript: "During the course of Mr. Alexander's argument the following statements were made by the Court and respective counsel."

Insert beginning with the word "Why" page 1827, line 11, to the end of line 20, page 1837, both inclusive.

(15) Omit page 1837, commencing with the word "Continuing" in line 21, to the end of line 19, page 1876, both inclusive.

(16) Insert following line 20, page 1837, the following agreed statement:
"The remainder of Mr. Alexander's argument and Mr. Wittschen's argument in reply have been omitted by stipulation."

(17) Insert the following agreed statement and parts of the reporter's transcript:
"At the conclusion of Mr. Wittschen's argument (which has been omitted by stipulation) the following took place:
Then insert the reporter's transcript, commencing with the words "The Court" in line 20, page 1876, all the balance of that page and all of pages 1877, 1878 and 1879.

10. The following exhibits introduced in evidence by plaintiff:

(1) It is stipulated that an agreed statement of facts in the form hereto attached and marked Exhibit "A" shall be printed in the record in lieu of plaintiff's exhibits numbers 1, 5, 6, 8, 9, 11, 12, 13, 14, 15, 17, 19, 20 and 21.

(2) Those parts of Exhibit No. 3, (R. P.) being the specifications for the construction of the project of defendant, designated as follows:

(a) All of page 1, except that part of subparagraph (d) of Section 2, appearing thereon.

(b) Subparagraph (i) of Section 2, appearing on page 2.

(c) The title and all of Section 3, appearing on pages 2 and 3.

(d) The title and all of Section 4, appearing on page 3.

(e) All of Section 5 of Exhibit No. 10, which is an amendment to the specifications, commencing with the title "Section 5—Payments" and all the balance thereof shall be printed at this place in lieu of Section 5 of the original specifications which it superseded. R. P.

(f) The title and all of Section 6, appearing on pages 4 to 10, inclusive, and Section (z-6) of Exhibit No. 10.

(g) The title and all of Section 7, appearing on page 10.

(h) The title and all of Section 8, appearing on pages 11 to 13, inclusive.

(i) The title and all of Section 9, appearing on pages 13 and 14.

(j) The title and all of Section 10, appearing on pages 14 and 15.

(k) The title and all of Section 13, appearing on pages 17 to 21, inclusive.

(l) The title and all of Section 14, appearing on pages 21 and 22.

(m) The title and all of Section 15, appearing on pages 22 to 29, inclusive.

(n) The title and all of Section 17, appearing on pages 32 to 36, inclusive.

(o) The title and all of Section 32, appearing on pages 57 to 63, inclusive.

(p) The title and paragraphs 1, 2 and 3 of Section 33, appearing on pages 63 and 64.

(3) Exhibit No. 7, being an amendment to the specifications, dated January 9, 1934. R. P.

(4) Exhibit No. 4, engineer's estimate. R. P.

(5) Exhibit No. 16, the contract. R. P.

(6) Exhibit No. 18, bond for faithful performance. R. P.

(7) All of Exhibit No. 22, being the geological report. R. P.

(8) Exhibit No. 23, tracing of profile map. R. P.

(9) Exhibit No. 24, engineer's estimate of cost. R. P.

(10) Exhibit No. 25, drawing of location of drift. R. P.

(11) Exhibit No. 27, drawing of contemplated methods of construction of tunnels. R. P.

(12) Exhibit No. 34, sketch of proposed drilling and timbering jumbo. R. P.

(13) Exhibit No. 37, photograph of steel tunnel form and carrier. R. P.

(14) Exhibit No. 39, series of photographs showing conditions during excavation of west portal cut. R. P.

(15) Exhibit No. 40, photograph of footings for west portal buildings. R. P.

(16) Exhibit No. 41, drawing showing bracing at west portal. R. P.

(17) Exhibit No. 42, poster showing methods of excavation used. R. P.

(18) Exhibit No. 43, photograph inside tunnel May 1, 1935. R. P.___to___.

(19) Exhibits Nos. 45 to 57, both inclusive, all being letters. R. P.

(20) Exhibit No. 59, tabulation of north tunnel excavation progress. R. P.

(21) Exhibit No. 60, tabulation of south tunnel excavation progress. R. P.

(22) Exhibits Nos. 62 to 67, both inclusive, all being letters. Two drawings are attached to Exhibit No. 62 showing proposed concreting methods. R. P.

(23) Exhibit No. 68, series of six photographs of 1935 cave-in. R. P.

(24) Exhibits Nos. 69 to 72, inclusive, all being letters. R. P.

(25) Exhibit No. 73, summary of work completed by Six Companies of California. R. P.

(26) Exhibit No. 76, photograph. R. P.

(27) Exhibit No. 77, series of six photographs. R. P.

(28) Exhibit No. 78, photograph. R. P.

(29) Exhibit No. 81, drawing of typical square set. R. P.

(30) Exhibit No. 82, series of four photographs of square sets. R. P.

(31) Exhibit No. 83, drawing showing places in tunnels where square sets were placed. R. P.

(32) Exhibit No. 84, letter. R. P.

(33) Exhibit No. 85, series of three photographs. R. P.

(34) Exhibit No. 86, schematic photograph. R. P.

(35) Exhibit No. 87, series of four photographs of cave-in of February, 1936. R. P.

(36) Exhibit No. 88, order of Industrial Accident Commission. R. P.

(37) Exhibit No. 89, letter from Industrial Accident Commission. R. P.

(38) Exhibit No. 90, order of Industrial Accident Commission. R. P.

(39) Exhibit No. 91, order of Industrial Accident Commission. R. P.

(40) Exhibit No. 92, order of Industrial Accident Commission, with diagram attached. R. P.

(41) Exhibit No. 93, two photographs. R. P.

(42) Exhibit No. 94, revised construction schedule. R. P.

(43) Exhibit No. 95, letter. R. P.

11. Those exhibits introduced by plaintiff and which are not herein designated to be printed or reproduced in the printed record are omitted either because they are models, large drawings, charts, photographs and bulky tabulations which have, by order of the District Court, been sent to the United States Circuit Court of Appeals for the Ninth Circuit for its inspection and use upon this appeal and which it would be impossible or impracticable to reproduce in the printed record but which, subject to objections, if, any, made when introduced, it is stipulated may be considered by said Court of Appeals in deciding this appeal, or are exhibits which have been superseded by the agreed statement of facts attached hereto and marked Exhibit "A".

12. The following exhibits introduced in evidence by the defendant.

(1) Exhibit A, being page 22 from the application of defendant to the Public Works Administration. R. P.

(2) Exhibit B, being diagram map showing location of tunnels in vicinity of San Francisco Bay area. R. P.

(3) Exhibit C, being twelve photographs. R. P.

(4) Exhibit D, being the geological report of Hulin on the Claremont Tunnel. R. P.

(5) Exhibit E, being a letter from L. M. Larson to George D. Louderback. R. P.

(6) Exhibit F, being two leters. R. P.

(7) Exhibit G, a photograph. R. P.

(8) Exhibit H, a photograph. R. P.

(9) Exhibit I, a photograph. R. P.

(10) Exhibit L, a photograph. R. P.

(11) Exhibit M, a photograph. R. P.

(12) Exhibit N, letter and construction schedule. R. P.

(13) Exhibit O, letter and construction schedule. R. P.

(14) Exhibit P, perspective drawing of region of San Francisco Bay. R. P.

(15) Exhibit S, letter with statement of sequence of operations for first 100 feet and drawings. R. P.

(16) Exhibits T, U, V, W and X, all being letters. R. P. ..... to .....

(17) Exhibit Y, being an order of the Department of Industrial Relations of the State of California. R. P.

(18) Exhibits Z and AA, both being letters. R. P. ..... to .....

(19) Exhibit BB, letter and drawings. R. P.

(20) Exhibits CC to HH, both inclusive, all being letters. R. P. ..... to .....

(21) Exhibit II, letter with drawing attached. R. P.

(22) Exhibits JJ to ZZ, both inclusive, all being letters. R. P. ..... to .....

(23) Exhibit AAA, being a letter. R. P.

(24) Exhibit BBB, letter with drawing attached. R. P.

(25) Exhibits CCC and DDD, both being letters. R. P. ..... to .....

(26) Exhibit EEE, special safety order of Industrial Accident Commission. R. P.

(27) Exhibits FFF to JJJ, both inclusive, all being letters. R. P. ..... to .....

(28) Exhibit KKK, a letter with drawing attached. R. P.

(29) Exhibits LLL to TTT, both inclusive, all being letters. R. P. ..... to .....

(30) Exhibit UUU, being transcript of proceedings of a hearing before the Industrial Accident Commission held on September 24, 1935. R. P.

(31) Exhibit VVV, being a special safety order of the Industrial Accident Commission. R. P.

(32) Exhibit WWW, consisting of a letter, memorandum and copy of administrative order of the Federal Emergency Administration of Public Works. R. P.

(33) Exhibit XXX, being estimates numbers 1 to 23, inclusive. R. P.

(34) Exhibit YYY, being a letter and a copy of estimate No. 24 and check. R. P.

(35) Exhibit ZZZ, being a letter. R. P.

(36) Exhibits A-4 to C-4, both inclusive, all being letters. R. P.....to.....

(37) Exhibit D-4, being a letter and a copy of estimate No. 25 and check. R. P.

(38) Exhibit E-4, being a letter. R. P.

(39) Exhibit G-4, being two photographs. R. P.

(40) Exhibit H-4, being a photograph. R. P.

(41) Exhibit I-4, being a letter. R. P.

(42) Exhibits M-4-1 and M-4-2, being photographs. R. P. ..... to .....

(43) Exhibit N-4, being a photograph. R. P.

(44) Exhibit O-4, being a contract between defendant and the United States of America. R. P.

(45) Exhibit X-3, being a supplement to the specifications, dated August 17, 1936. R. P.

(46) Exhibit X-11, being a supplement to the specifications, dated September 23, 1936. R. P.

(47) Exhibits X-103 to X-108, both inclusive. R. P. ..... to .....

(48) It is stipulated that an agreed statement of facts in the form hereto attached and marked Exhibit "B" shall be printed in the record in lieu of defendant's exhibits

X-1, X-2, X-4 to X-10, both inclusive, and X-12 to X-102, both inclusive.

(49) Exhibit X-109, being a schedule of total amounts paid by defendant for completing project under contracts for schedules A, B, C, D, E, F, G and H. R. P.

(50) Exhibit X-110, being schedule showing amounts withheld from plaintiff and not appearing in any engineer's estimate. R. P.

(51) Exhibit X-111, being schedule showing computed total cost of construction of defendant's project based on unit prices set forth in contract dated June 4, 1934, between plaintiff and defendant and units of work performed. R. P.

(52) Exhibit X-112, being a schedule of computation of amount claimed by defendant from plaintiff for completion of the project. R. P.

(53) Exhibit X-113, being a tabulation by defendant of costs alleged to be attributable to cessation of work by plaintiff. R. P.

(54) Exhibit X-114, being a tabulation by defendant of costs of operations of defendant. R. P.

(55) Exhibit X-115, being a computation by defendant of interest calculations. R. P.

(56) Exhibit X-116, being affidavit and certificate of district engineer, dated November

29, 1937, respecting completion of defendant's project, filed with the Director of Public Works of the State of California on November 30, 1937, resolution of the Board of Directors of defendant, dated December 1, 1937, and certificate of County Clerk of Contra Costa County to filing of resolution with Board of Supervisors of Contra Costa County and certificate of County Clerk of Alameda County to filing of resolution with Board of Supervisors of Alameda County. R. P.

13. Clerk's minute order of May 27, 1938. R. P. 112.

14. Order granting motion for judgment on complaint in favor of defendant. R. P.

15. Clerk's minute order of May 31, 1938. R. P. 113.

16. Order denying motion to dismiss cross-complaint. R. P.

17. Order granting motion to dismiss cross-complaint as to cross-defendants Fireman's Fund Indemnity Company and Pacific Indemnity Company. R. P.

18. Clerk's minute order of June 1, 1938. R. P. 114.

19. Order granting motion to amend cross-complaint on face. R. P.

20. Dismissal of cross-complaint as to Fireman's Fund Indemnity Company and Pacific Indemnity Company. R. P. 115.

21. Clerk's minute order of June 2, 1938. R. P. 117.

22. Stipulation and order for amending answer and cross-complaint. R. P. 118.

23. Clerk's minute order of August 8, 1938. R. P. 131.

24. Opinion of the Judge of the District Court. R. P. 121.

25. Findings of fact and conclusions of law, being the same as those requested by defendant. R. P. 132.

26. Stipulation and order extending time of plaintiff and cross-defendants to submit findings of fact and conclusions of law and proposed amendments to defendant's requested findings of fact and conclusions of law. R. P. 188.

27. Plaintiff's and cross-defendants' objections and amendments to defendant's requested findings of fact and conclusions of law and plaintiff's and cross-defendants' requested findings of fact and conclusions of law. R. P. 193.

28. Judgment. R. P. 261.

29. Notice of entry of judgment prepared and served by the Clerk on September 27, 1938, and proof of service. R. P. 267.

30. Defendant and cross-complainant's notice of entry of judgment and proof of service, filed on September 30, 1938. R. P. 268.

31. Notice of appeal dated November 25, 1938, and filed November 25, 1938. R. P. 273.

32. Clerk's notice that notice of appeal was filed by plaintiff and cross-defendants on November 25, 1938. R. P. 276.

33. Supersedeas bond. R. P. 277.

34. Appellants' designation of contents of record on appeal. R. P. 300.

35. Stipulation that District Court may order all original papers and exhibits sent to the United States Circuit Court of Appeals for the Ninth Circuit. R. P. 302.

36. Order of District Court that all original papers and exhibits be sent to the United States Circuit Court of Appeals for the Ninth Circuit. R. P. 305.

37. Stipulation that District Court may extend time for filing and docketing record on appeal with the United States Circuit Court of Appeals for the Ninth Circuit to and including February 21, 1939. R. P. 307.

38. Order of District Court extending time for filing and docketing record on appeal with the United States Circuit Court of Appeals for the Ninth Circuit to and including February 21, 1939. On file with the Clerk of the Circuit Court of Appeals.

39. Stipulation as to contents of record on appeal. R. P. 338.

40. District Clerk's certificate to record on appeal. R. P. 343.

41. Those exhibits introduced by defendant and which are not herein designated to be printed or

reproduced in the printed record are omitted either because they are drawings, charts, photographs, catalogs and bulky tabulations which have, by order of the District Court, been sent to the United States Circuit Court of Appeals for the Ninth Circuit for its inspection and use upon this appeal and which it would be impossible or impracticable to reproduce in the printed record but which, subject to objections, if any, made when introduced, it is stipulated may be considered by said Court of Appeals in deciding this appeal, or are exhibits which have been superseded by the agreed statement of facts attached hereto and marked Exhibit "B".

This stipulation is made pursuant to subparagraph 6 of Rule 19 of the United States Circuit Court of Appeals for the Ninth Circuit and it is stipulated by all the parties hereto that the parts of the record which it is hereby stipulated shall be printed will contain all parts thereof which are necessary or material to a consideration of the points upon which appellants will rely on this appeal, except certain exhibits hereinbefore mentioned, consisting of models, large drawings, charts, photographs, catalogs and bulky tabulations which it is impossible or impracticable to print or reproduce in the printed record; provided, however, that should anything material to either party be omitted from the printed record by error or accident or should anything be misstated therein, the parties hereto stipulate and agree that such omission or

misstatement shall be corrected and, if necessary, that a supplemental record shall be printed.

Dated: February 21, 1939.

PAUL S. MARRIN,
THELEN & MARRIN,
DeLANCEY C. SMITH,
EUGENE E. TREFETHEN,
1000 Balfour Building,
351 California Stret,
San Francisco, California.
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Attorneys for Appellants.

ARCHIBALD B. TINNING,
T. P. WITTSCHEN,
924 Main Street,
Martinez, California.
Attorneys for Appellee.

[Endorsed]: Filed Feb. 21, 1939. Paul P. O'Brien, Clerk.

[Title of District Court and Cause.]

TESTIMONY

Wednesday, April 13, 1938.

The Court: You may proceed with the Six Companies Case.

Mr. Marrin: May it please the Court, we have a number of formal matters in connection with the execution of the contract which the defendant is ready to produce, and which we are going to put in by stipulation, thus saving as much time as possible. Mr. Tinning, you have the resolution of March 30, 1933?

Mr. Tinning: Yes.

Mr. Marrin: Will it be stipulated that is a certified and correct copy of a resolution adopted by the Board of Directors of the defendant Joint Highway District No. 13 on March 30, 1933, approving final surveys, plans, specifications, and detailed drawings and final estimate of cost of the project proposed to be constructed by the Defendant, Joint Highway District No. 13, and directing a certified copy thereof be transmitted by the Secretary of the District to the Director of the Department of Public Works of the State of California for his approval.

Mr. Tinning: So stipulated.

Mr. Marrin: We offer this in evidence.

The Court: It will be admitted and marked.

(The document was marked "Plaintiff's Exhibit 1.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: In connection with all these matters, Mr. Tinning, will it be stipulated that inasmuch as these are copies they will be subject by both sides to comparison and check as to their correctness?

Mr. Tinning: Yes. Except as to the certified copy of the Resolution. I have not brought the original minutes, they are very voluminous, but they have all been double compared. Except as to those things I think in every instance I have an original here. I have the original plans here if you desire to inspect [486] them, of the project.

Mr. Wi' schen: May we have an understanding both ways, that when exhibits are going in and are copies that they are put in subject to correction?

Mr. Marrin: Surely. Will it be stipulated that these are the original plans?

Mr. Tinning: Those are a copy, and the original plans are here. They are in exactly the same form, and the filed plan has the endorsement of the secretary's file on this date. Those are originals taken from the same——

Mr. Marrin: We will stipulate, then, that this is a correct copy of the Plan for Construction of the Project of Joint Highway District No. 13 of the State of California, adopted by the resolution of the Board of Directors of Joint Highway District No. 31 by the Resolution which has been introduced as Plaintiff's Exhibit No. 1.

Mr. Tinning: March 30, 1933.

Mr. Marrin: I offer these in evidence as Plaintiff's Exhibit.

(The plans were marked "Plaintiff's Exhibit 2.")

Mr. Marrin: Will it be stipulated that this document entitled "Joint Highway District No. 13 of the State of California—Specifications for Construction of Project including Highway, Highway Tunnel and Approaches with Appurtenant Structures," is a true copy of the specifications for the construction of the project, with the exception of the Engineer's Estimate, which was filed on March 30, 1933, and was adopted by the Resolution of the Board of Directors of the District, which has been introduced in evidence as Plaintiff's Exhibit No. 1?

Mr. Tinning: The specifications are a true copy and I think under our act the estimates are a separate document, call for a [487] separate document. The copy of the estimate is a true copy of the copy of the specifications.

Mr. Marrin: We offer in evidence first the specifications for the construction of the project which I have described.

(The document was marked "Plaintiff's Exhibit 3.")

[Set forth in the Book of Exhibits at page 4.]

Mr. Marrin: We next offer in evidence the Engineer's Estimate.

(The document was marked "Plaintiff's Exhibit 4.")

PLAINTIFF'S EXHIBIT 4

FINAL ESTIMATE OF COST

A.	Tunnel with Ventilation and Portal Structures		$2,808,286.74
B.	Main Roadway:		
	West of Tunnel	$396,401.54	
	East of Tunnel	52,514.28	$ 448,915.82
C.	Landvale and Berkeley Connections		233,062.97
			$3,490,265.53
	Add Engineering, Supervision and Overhead, 7½%		$ 261,769.91
			$3,752,035.44

(Signed) WALLACE B. BOGGS.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 4. Filed April 13, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Marrin: Will it be stipulated that this is a true copy of the certificate of Earl Lee Kelly dated April 5, 1933, approving the final surveys, plans and specifications and detailed drawings theretofore prepared by Joint Highway District No. 13 for the construction of its project, and adopted by the Board of Directors on March 30, 1933?

Mr. Tinning: So stipulated.

Mr. Wittschen: Give Mr. Kelly's official title.

Mr. Tinning: Director of the Department of Public Works of the State of California.

Mr. Marrin: We offer that in evidence.

(The document was marked "Plaintiff's Exhibit 5.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document entitled "Resolution of the Board of Directors of Joint Highway District No. 13 of the State of California approving amendments and supplements to specifications accompanying and forming a part of the final surveys, plans, specifications, detailed drawings, including a final estimate of cost, of the project proposed to be constructed by Joint Highway District No. 13 of the State of California, filed by Wallace B. Boggs, District Engineer, with the Board of Directors of said Joint Highway District on the 9th day of January, 1934, and directing a certified copy thereof to be transmitted by the [488] secretary of this District to the Director of the Department of Public Works of the State of California for his approval," is a true copy of a resolution adopted by the Board of Directors approving first amendment to the specifications, which resolution was adopted on January 9, 1934?

Mr. Tinning: So stipulated.

Mr. Marrin: We offer that in evidence.

(The document was marked "Plaintiff's Exhibit 6.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document entitled "Joint Highway District No. 13 of the State of California, Amendments and Supplements to Final Specifications for Construction of

Project, including Highway, Highway Tunnel and Approaches, with Appurtenant Structures" is a true copy of an amendment to the specifications prepared by the District which was adopted by Resolution of the Board of Directors on January 9, 1934?

Mr. Tinning: So stipulated. For the sake of the record, Mr. Marrin, I might say these are the amendments that were required under the P.W.A. grant to meet their requirements.

Mr. Marrin: We offer that in evidence.

(The document was marked "Plaintiff's Exhibit 7.")

[Set forth in the Book of Exhibits at page 140.]

Mr. Marrin: Will it be stipulated that this document is a true copy of the certificate signed by Earl Lee Kelly, Director of the Department of Public Works of the State of California, dated January 15, 1934, approving the amendments to plans and specifications for the project of the defendant as adopted by the Board of Directors of the defendant on January 9, 1934?

Mr. Tinning: So stipulated.

Mr. Marrin: I offer that in evidence.

(The document was marked "Plaintiff's Exhibit 8.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document entitled "Resolution of the Board of Directors of Joint Highway District [489] No. 13 of the State

of California approving second amendment and supplement to specifications accompanying and forming a part of the final surveys, plans, specifications, detailed drawings, including a final estimate of cost, of the project proposed to be constructed by Joint Highway District No. 13 of the State of California; filed by Wallace B. Boggs, District Engineer, with the Board of Directors of said Joint Highway District on the 3rd day of April, 1934, and directing a certified copy thereof to be transmitted by the Secretary of this District to the Director of the Department of Public Works of the State of California for his approval," is a true and correct copy of a resolution of the Board of Directors of Joint Highway District No. 13 adopted at a meeting of the Board of Directors held on April 3, 1934?

Mr. Tinning: So stipulated.

Mr. Marrin: I offer that in evidence.

(The document was marked "Plaintiff's Exhibit 9.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document entitled "Joint Highway District No. 13 of the State of California, Second Amendment and Supplement to Final Specifications for Construction of Project, Including Highway, Highway Tunnel and Approaches with Appurtenant Structures, Adopted April 3, 1934," is a true and correct copy of the Second Amendment to the Plans and Specifica-

tions for the construction of the project of the District which was adopted on April 3, 1934?

Mr. Tinning: So stipulated.

Mr. Marrin: We offer that in evidence.

(The document was marked "Plaintiff's Exhibit 10.")

Mr. Marrin: Will it be stipulated that this document is a true and correct copy of a certificate executed by Earl Lee Kelly, under date of April 6, 1934, approving the second amend- [490] ment to the plans and specifications for the project of Joint Highway District No. 13, approved by the Board of Directors by resolution dated April 3, 1934?

Mr. Tinning: So stipulated.

Mr. Marrin: I offer that in evidence.

(The document was marked "Plaintiff's Exhibit 11.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document entitled "Resolution of the Board of Directors of Joint Highway District No. 13 of the State of California giving notice to contractors that bids for the construction of the project of the district will be received and directing publication thereof" is a true and correct copy of a resolution adopted by the Board of Directors of defendant on May 4, 1934, and directing that notice shall be given to contractors for the submission of bids on the project of the District?

Mr. Tinning: So stipulated.

Mr. Marrin: I offer that in evidence.

(The document was marked "Plaintiff's Exhibit 12.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that the document entitled "Affidavit of Publication, In the Matter of Joint Highway District No. 13 State of California, Notice to Contractors," is a true and correct copy of an affidavit of publication in the Oakland "Tribune" of the Notice to Contractors, a copy of which is attached thereto?

Mr. Tinning: So stipulated.

Mr. Marrin: And it will be stipulated that that notice was published in the Oakland "Tribune" on the dates set forth in the affidavit?

Mr. Tinning: Yes.

Mr. Marrin: I offer that in evidence. [491]

(The document was marked Plaintiff's Exhibit 13.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document entitled "Joint Highway District No. 13 of the State of California. Bid Forms. 1. Bidder's Proposal Sheet; 2. Bidder's Certificate of Compliance with N.R.A.; 3. Bidder's Statement of Experience, Financial Responsibility and Technical Ability," is a true and correct copy of the bid submitted

by the plaintiff to the defendant on May 22, 1934, for the construction of the project of defendant?

Mr. Tinning: So stipulated.

Mr. Marrin: I offer that in evidence.

(The document was marked "Plaintiff's Exhibit 14.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document is a true and correct copy of the resolution adopted by the Board of Directors of the Defendant on May 29, 1934, awarding to plaintiff a contract for the construction of the project of defendant upon which plaintiff submitted a bid to the defendant on May 22, 1934.

Mr. Tinning: So stipulated.

Mr. Marrin: I will offer that in evidence.

(The document was marked "Plaintiff's Exhibit 15.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document entitled "Contract" between Joint Highway District No. 13 of the State of California and Six Companies of California, dated June 4, 1934, and signed by Joint Highway District No. 13 of the State of California by Thomas E. Caldecott, President and Harry M. Stow, Secretary, and by Six Companies of California, a corporation, by S. D. Bechtel, President and Edgar S. Kaiser, Secretary, is a true and correct copy of a contract entered into

between the plaintiff and the defendant for the construction of the project of the defendant?

Mr. Tinning: So stipulated. [492]

Mr. Marrin: I offer that in evidence, as "Plaintiff's Exhibit 16."

(The document was marked "Plaintiff's Exhibit 16.")

[Set forth in the Book of Exhibits at page 157.]

Mr. Marrin: Will it be stipulated that this document which is in my hand is a true and correct copy of a resolution adopted by the Board of Directors of Plaintiff on June 4, 1934, authorizing the officers of plaintiff to execute the contract and bonds between plaintiff and defendant for the construction of the project of defendant?

Mr. Tinning: So stipulated.

Mr. Marrin: I offer that in evidence.

(The document was marked "Plaintiff's Exhibit 17.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document entitled "Bond for Faithful Performance," dated June 12, 1934, and executed by plaintiff and the surety companies named therein, is a true and correct copy of the bond for faithful performance of the contract between plaintiff and defendant for the construction of the project of defendant?

Mr. Tinning: So stipulated.

Mr. Marrin: I offer that in evidence.

(The document was marked "Plaintiff's Exhibit 18.")

[Set forth in the Book of Exhibits at page 198.]

Mr. Marrin: Will it be stipulated that this document entitled "Bond for Materialmen and Laborers," dated June 12, 1934, and executed by plaintiff and the surety companies named therein, is a true and correct copy of the bond for materialmen and laborers which was filed with and approved by defendant in connection with the contract between plaintiff and defendant for the construction of defendant's project?

Mr. Tinning: So stipulated.

Mr. Marrin: I will offer that in evidence. [493]

(The document was marked "Plaintiff's Exhibit 19.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that this document is a true and correct copy of a resolution adopted by the Board of Directors of Defendant on June 14, 1934, approving the faithful performance bond filed by plaintiff with defendant?

Mr. Tinning: So stipulated.

Mr. Marrin: I offer that in evidence.

(The document was marked "Plaintiff's Exhibit 20.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated that the document I have in my hand is a true and correct copy

of a resolution adopted by the Board of Directors of defendant on June 14, 1934, approving the bond for materialmen and laborers, filed by plaintiff with defendant?

Mr. Tinning: So stipulated.

Mr. Marrin: I will offer that in evidence.

(The document was marked "Plaintiff's Exhibit 21.")

[Note: See Agreed Statement of Counsel set out in the Book of Exhibits at page 1.]

Mr. Marrin: Will it be stipulated, Mr. Tinning, that the contract and specifications, plans and amendment thereto were prepared by defendant District?

Mr. Tinning: Yes.

Mr. Marrin: Have you the geological report referred to in the plans and specifications?

Mr. Tinning: Yes.

Mr. Marrin: Will it be stipulated, Mr. Tinning, that this document dated June 23, 1932, entitled "Geological Report" addressed to Mr. George A. Posey, District Engineer, Joint Highway District No. 13, 454 Fifth Street, Oakland, California, and signed by George D. Louderback, Consulting Geologist, is the original geological report referred to on page 58, Section 32, sub-section 4 of the specifications which have been introduced in evidence? [494]

Mr. Wittschen: Mr. Marrin, we will stipulate to the correctness of the identity and will not require you to prove the report, but will reserve all rights to object to the introduction of the reports in evi-

dence and the stipulation is not to be deemed to go further than merely save you the necessity of proof.

Mr. Marrin: I understand that. Your stipulation simply goes to the identity of this document, that it was the document referred to in the specifications?

Mr. Wittschen: Correct. You do not have to waste any time proving it, but we will object to its introduction.

Mr. Marrin: I offer this document entitled "Geological Report" in evidence.

Mr. Wittschen: We object to the introduction of that report in evidence, not only on the ground that it is incompetent, irrelevant, and immaterial, but on the further ground that it has no part in this case, and is an attempt to vary the contract between the parties. If your Honor will permit, I have some authorities I would like to present and argue that matter.

The Court: Well, I will offer this as a suggestion.

Mr. Wittschen: Certainly.

The Court: Probably in the interest of time, that it go in subject to your motion to strike and over your objection.

Mr. Wittschen: Yes.

The Court: And you may renew your motion at the end of the trial in relation to it. Make a note of it. Then I will be in a better position to rule after I get the picture.

Mr. Wittschen: Certainly.

Mr. Marrin: There is no objection, your Honor, to substituting a copy, which I understand Mr. Tinning desires to do.

Mr. Tinning: To save time later, the Geological Report, that [495] copy has certain maps and matter that were prepared under Dr. Louderback's direction, and were prepared by the District, and are not attached to this original document, and I am going to give you what you received from us, all those matters, to save time, later.

Mr. Marrin: Well, it will be stipulated, then, that the copy of the maps and profiles attached were true copies of what was submitted to bidders in connection with this contract?

Mr. Tinning: Yes.

Mr. Marrin: And, as you stated, it was received by us from you?

Mr. Tinning: Yes.

Mr. Marrin: I offer that in evidence.

Mr. Tinning: Subject to our objection.

(The document was marked "Plaintiff's Exhibit No. 22.")

[Set forth in the Book of Exhibits at page 212.]

Mr. Wittschen: Note an exception.

CHAD F. CALHOUN,

Called for the Plaintiff; sworn.

The Court: Q. What is your business or occupation?

(Testimony of Chad F. Calhoun.)

A. I am at present general manager of the Calhoun Company.

Q. What is the nature of their business?

A. It is oil well tubular supplies, oil well supplies.

Mr. Marrin: Q. Mr. Calhoun, I show you Plaintiff's Exhibit No. 16, which is a contract between Joint Highway District No. 13 and Six Companies of California, which is dated June 4, 1934. Prior to the date of that contract did you learn that the Joint Highway District No. 13 had advertised for bids for that contract? A. Yes, I did.

Q. When did you learn that?

A. In the forepart, the first part of February, 1934.

Q. How did you learn it?

A. First through the publication in the [496] Western Construction News Bureau Service and then by direct contact with the Chief Engineer of the Joint Highway District, Mr. Boggs.

Q. Did you take any action toward looking toward the preparing of the cost estimate for submitting a bid for that contract?

A. Yes, I did.

Q. Will you state what you did?

Mr. Wittschen: Was that for the Six Companies?

Mr. Marrin: It was not directly for the Six Companies. This was before the Six Companies was organized. We will connect it up later.

(Testimony of Chad F. Calhoun.)

Q. Will you state what you did?

A. I contacted the District Office through Mr. Boggs and secured the plans and specifications that were advertised in the official notice. I took those plans and specifications and made a complete study of all of the features that would relate particularly to the cost.

Q. What do you mean by "contacted"? Did you talk to him?

A. I talked to Mr. Boggs both over the phone and interviewed him in his office.

The Court: Who is Mr. Boggs?

Mr. Marrin: Who was Mr. Boggs?

A. The chief engineer for the Joint Highway District No. 13.

Q. You secured a copy of the plans and specifications?

A. I secured a copy of the plans and specifications as soon as they were made available to me by the District, which was around the forepart of February, as I now recall, February, 1934, and from those plans and specifications I made a thorough study of all of the construction features and some of the legal features, and the financial set-up of the district.

Q. Did you ever talk to Mr. Boggs about the Geological Report? [497]

Mr. Wittschen: I object to the question on the ground it is immaterial, irrelevant, and incompetent, and on the further ground the conversation with an

(Testimony of Chad F. Calhoun.)

employee is not binding on the District. You asked if he talked to him. I suppose my objection is premature.

Mr. Marrin: I want to bring out and offer to prove by this witness that this witness called at the office of the Joint Highway District No. 13 and asked the Chief Engineer for a copy of the Geological Report, which was mentioned in the specifications, and that he was told they did not have copies for distribution, but was shown a copy of the report and made a copy thereof, and a tracing from one of the profiles attached there, and also that Mr. Boggs gave to this witness an estimate of the cost of constructing the project. Mr. Boggs is the Chief Engineer. He will be rather prominent in this case because he was in charge of the defendant's office, and we think the proof is competent and binding on the District. Now, the specifications put out by the district refer the bidders to this Geological Report which is in the office of the District.

Mr. Wittschen: There is no question but what they had a right to look at the Geological report, but my objection is not directed to that, but the estimate of Mr. Boggs is his official estimate, which is on file, a copy of which you have, and the plans and specifications, but no conversation with Mr. Boggs can vary the written document. My objection is a little premature, because you have not asked him for the conversation yet.

(Testimony of Chad F. Calhoun.)

The Court: Did you talk to him? You may answer "Yes" or "No." A. Yes, I did.

Mr. Marrin: Q. What did you say and what did he say?

Mr. Wittschen: Objected to on all of the grounds previously [498] stated, it is immaterial, irrelevant, and incompetent, and that the District is not bound by conversations with Mr. Boggs or any other officer, and that the report speaks for itself, and that the defendant bid upon plans and specifications, and nothing else, not on a conversation.

The Court: Is your record complete?

Mr. Marrin: I simply want to show at this time by this witness that he asked for a copy of the Geological Report as I stated, and that Mr. Boggs showed him a copy, or at that time a copy was handed to him.

Mr. Wittschen: Exception.

The Court: Are you sure you copied it?

A. Yes, I did.

The Court: Proceed.

Mr. Marrin: Q. I show you Plaintiff's Exhibit No. 22 and ask you if that is a copy of the document which Mr. Boggs showed you?

A. As far as the written part is concerned, the text, that appears to be a copy of the report which I examined at that time, which was furnished me, but this report does not contain one profile-section that was in the report I examined at that time.

(Testimony of Chad F. Calhoun.)

Mr. Tinning: If you will give us the date I will try to check up and see what that is.

Mr. Marrin: About when did you examine that report?

A. As near as I can recall, it was around the middle of February.

Q. I think you said that the written matter was the same but there was some difference in the profile.

A. That is right.

Q. Did you read that report?

A. Yes, I did. I read it in its entirety.

Q. Did you copy any part of it?

A. I made notes on the forepart of the report that pertained to the outside construction, that is, the highway construction, and some of the viaduct work. I made a complete longhand copy of that portion pertaining to the highway [499] tunnel.

Q. Will you state the pages in the report of which you made a complete longhand copy?

A. Using the paging that is in this copy, I made a complete longhand copy of all of pages 13, 14, 15, 16, 17, 18 and 19.

Q. I show you, Mr. Calhoun, a profile which has on it "Broadway Tunnel, Joint Highway District No. 13, Geological Report, By George E. Louderback, July, 1930" with the notation "Copied from Report 2/17/34, C. F. C.," and ask you if you can tell me what that is?

A. Well, this is a photostatic reproduction of an exact copy or tracing that I made from a profile sec-

(Testimony of Chad F. Calhoun.)

tion attached to the report which I examined, as furnished to me by Mr. Boggs on February 17, 1934. This tracing or copy which I made was from a profile section attached to the report at that time, but which is not included in this exhibit here submitted to me previously.

Mr. Marrin: I offer that in evidence.

Mr. Wittschen: Objected to upon the ground that it is immaterial, irrelevant and incompetent, and furnishes no basis for proving any issue in this case.

Mr. Marrin: It is offered for the purpose of showing the representations which were made by the defendant to the plaintiff, or the inducement for entering into this contract.

Mr. Wittschen: I would like to be heard.

Mr. Marrin: On the issues of fraud, mistake and warranty.

Mr. Wittschen: I would like to make a few observations as to that. One is that this witness at that time was not working for the plaintiff, and, secondly, the authorities hold that the highway contractor cannot base his bid upon statements made by employees of the contracting party; he bases his bid upon the [500] contract and upon the specifications and since this Geological Report expressly was excepted from the specifications and there was a statement therein that the bidder was not to rely upon the same, but was to do his own geology; it was merely that he could look at it if he wished, and he

(Testimony of Chad F. Calhoun.)

expressly agreed that he would not hold the District responsible for anything connected therewith. It has no part in this case.

Mr. Marrin: If your Honor please, I do not agree with Mr. Wittschen's interpretation of the cases and on the question of the admissibility of statements made by the District Representative, and documents which they display to prospective bidders. I should like to cite to the Court the case of Stanton v. Morris Construction Company, a Minnesota Case, cited in 199 N. W. 104. In that case the County had prepared a map showing certain conditions to exist, and the attention of the bidders was called to the map. The plaintiff in this case, a contractor, had called at the office of the defendant, and certain statements had been made to the contractor by the engineer of the defendant, and the map was displayed to the contractor, and the map was offered in evidence and objection was made to it on the ground that Mr. Wittschen has made, that it was not part of the contract, and the Court said on that point:

"The claim made in the oral argument that the survey map was not a part of the plans and specifications of the contract and is not in evidence, cannot be sustained. It was offered by plaintiff, and was treated as received during the whole trial."

That, of course, is a little different than the case here. But the Court said:

(Testimony of Chad F. Calhoun.)

"Its importance to the vital issue in the case does not depend upon its being a part of the contract, but upon the fact [501] that the representations thereon were intended to and did induce defendant to make its bid and execute the contract."

Now in this case, if your Honor please, we have brought suit upon a common count which is a form of action that is well recognized in this State as being the proper form of action in case of a rescission of the contract; where the contract is rescinded for breach by the defendant, when it is rescinded for fraud or mistake, whether the fraud is implied or actual; the plaintiff cannot bring an action on the contract, but must sue on the common count. Now, it is well recognized in that class of cases that the plaintiff has the right not only to introduce the contract, but also to introduce any evidence of its breach.

In the case of Brown v. Crown Gold Milling Company, 150 Cal. 376, which was a case which was brought in the form of quantum meruit, and the plaintiff in the case introduced evidence of the express contract, and its breach, the Court held that the evidence was properly admitted and stated:

"Here the action is brought not upon an express contract, but upon a quantum meruit to recover the reasonable value of services. The contract which was shown by the evidence of plaintiff to have been made was not proven for the purpose of recovering upon it, but for the purpose of showing that it was

(Testimony of Chad F. Calhoun.)

entered into between himself and the defendant, its terms, and a breach of it on the part of defendant by discharging him without cause, for the purpose of recovering on a quantum meruit the reasonable value of the services he performed under it prior to its breach."

Now, in Castagnino v. Balletta, 82 Cal. 250—these cases, by the way, are cited in our trial brief—the Court held that the form of action on quantum meruit was proper; that evidence of the contract and its breach could be received. The Court [502] stated that the form of action on quantum meruit has been too long and too well settled in this State to be the subject of further debate or controversy, and quotes the following from Greenlief on Evidence, as a proper case for the use of the common counts:

"Where the contract, though partly performed, has been either abandoned by mutual consent, or rescinded and extinct by some act on the part of the defendant. Here the plaintiff may resort to the common counts alone for remuneration for what he has done under the special agreement."

And it says as to the admissibility of the evidence:

"In this case there is evidence tending to show that the architect accepted the building; that all other preliminaries were complied with by the plaintiff, and nothing remained but the payment of the money. The pleader, under such a state of facts, could set forth his cause of action under the com-

(Testimony of Chad F. Calhoun.)

mon counts adopted by him in accordance with the rules above set forth. And under such counts the special contract was admissible in evidence. (See Reynolds v. Jourdan, 6 Cal. 109, where it was held that the special contract was admissible under the common counts as an admission of the standard of value, or as proof of any other fact necessary to the recovery, and should be allowed to go to the jury whenever it can aid them in attaining a sound conclusion."

In another case, Breen v. Roy, 8 Cal. App. 475, the plaintiff was permitted by the Court to introduce the special contract and show that he was prevented from recovering it.

Now, the cases are very clear, if your Honor please, that in this form of action plaintiff may introduce a special contract and may show all of the breaches of the contract. If the plaintiff could not show the representations which had been made [503] as an inducement to enter into the contract the plaintiff would have no way to prove its right to rescind for fraud or for mutual mistake. And it is well settled in this State that the parol evidence rule does not prevent the admission of evidence to show misrepresentation in entering into a contract.

In the case of Ferguson v. Koch, 204 Cal. 342, the Supreme Court of this State said:

"Parol evidence is always admissible to prove fraud, and it was never intended that the parol evidence rule should be used as a shield to prevent

(Testimony of Chad F. Calhoun.)

the proof of fraud. Hence, the fact that the sale of an automobile is evidenced by a written contract will not prevent the purchaser from proving by parol evidence that the sale was induced by fraud. And this is true, even though the contract recites that all conditions and representations are embodied therein. There is no such sanctity surrounding a writing that parties may not be permitted to go back of it and show that there was such fraud practiced in the procurement of the same as to vitiate the writing. The law never countenanced a rule which would deny to one the right to prove that fraud had been practiced on him. In actions for rescission upon the ground of fraud the statutory provisions that when the terms of an agreement have been reduced to writing such writing is to be considered as containing all the terms, and that the execution of a contract supersedes all prior negotiations or stipulations, have no application and do not control. Appellant has cited us to certain earlier cases in our reports which he claims make a distinction between fraudulent representations going to induce the making of a contract and representations in the nature of warranties. There is no reason why any such distinctions should exist, and, in fact, none does exist." [504]

Now, then, there is another reason, if your Honor please, why we may introduce any evidence which we desire in this case on the parol question. Plaintiff sued on a common count. The defendant has

answered and set up a special contract by way of defense and avoidance. It is a well-established rule in this State that in such a state of the pleadings the plaintiff is free to introduce any evidence it has to overcome, set aside and void a special contract. I cite your Honor to the case of Maxwell v. Jimeno, 89 Cal. App. 612, in which case the plaintiff had sued upon a common count for money alleged to be due him for services. The answer set up an express contract and alleged that the services were performed under it. The lower court found that the contract was obtained by false and fraudulent representations and that plaintiff repudiated, canceled and rescinded it. Defendant appealed, urging that as the complaint did not allege fraud plaintiff could not prove it. However, the Court said at page 614:

"In Sarnighausen v. Scannell, the Court says: 'Under our form of pleading, there is no opportunity offered for the filing of a replication to the answer. When affirmative matter is pleaded as a defense it is deemed to be denied. Thus, where a contract is set up as a special defense, plaintiff, without pleading such matter, may show that it was procured by fraud, menace or duress, or that it has been rescinded."

And in Moore v. Copp, 119 Cal. 429, the Court said:

"Where the defendant has pleaded a written instrument in defense (not by way of cross-complaint), and the plaintiff has not served and filed an

(Testimony of Chad F. Calhoun.)

affidavit denying the instrument, and has offered no evidence controverting it on any ground, the instrument is to be deemed admitted and must be taken for what it appears on its [505] face to be. But the plaintiff may controvert the instrument by evidence of fraud, mistake, undue influence, compromise, payment, statute of limitations, estoppel, and the like defenses under Section 462 of the Code of Civil Procedure. In short, he may by evidence controvert the instrument upon any and all grounds, except that he cannot controvert its due execution nor its genuineness. By 'genuineness' is meant nothing more than that it is not spurious, counterfeit, or of different import on its face from the one executed, but is the identical instrument executed by the party."

Now, there is one other matter I would like to mention briefly, and that is the effect of the self-exonerating cause in this contract. The defendant in this case drew the attention of prospective bidders to this geological report and referred them to this information. It must have done so, as the Circuit Court of Appeals in this Circuit said in the Sartoris Case, for some purpose, and that purpose was unquestionably to influence the bid. Now, the defendant, in our opinion, cannot escape the responsibility for the representations it makes by saying that "I represent this to be so and so and represent this to be the fact, but I disclaim any liability for it."

(Testimony of Chad F. Calhoun.)

The decisions on the effect of the self-exonerating clause are referred to and summarized in the Passaic Valley Case—there are several of them in the United States Supreme Court, and other decisions which I will not burden you with this morning, but I would like to refer to this case and read a quotation from it as I believe it sets forth the law on this subject.

This Passaic Valley Sewerage Commissioners v. Holbrook, 6 Fed. (2d) 721, was a case in which a contract had been entered into for the construction of a sewer tunnel. The defendant in [506] that case had made borings and had transcribed the result of those borings on a certain map, which borings indicated that the formation would be a cemented Triassic formation, and would be impervious to water and air. It attached the following notation:

"The borings, soundings, contour lines, profile and indications of rock outcroppings, sub-surface materials, pipes, and other underground structures are supposed to be approximately correct, but should they be found to be otherwise the contractor shall have no claim on that account, it being expressly understood that the Commissioners do not warrant the plot to be approximately correct."

When it was found that the condition was not as indicated on the maps which were displayed by the defendant district to the bidder, prior to entering into the contract, and after the contractor had proceeded to some extent under the contract, it re-

(Testimony of Chad F. Calhoun.)

scinded the contract on the ground of breach of warranty, misrepresentation, mistake and fraud, and brought suit on quantum meruit, the same as we have here, to recover the actual cost of the labor performed, services rendered, and material furnished in the work. The defendant, after suit was brought, brought up this self-exonerating clause as a defense, saying while it displayed this information it did not warrant it in any way, and warned all bidders to make their own examination, but after reviewing the decisions of the Supreme Court of the United States on this point at some length the Court said:

"The last case on the subject and one containing facts which resemble closely those of the instant case, is United States v. Atlantic Dredging Company, 253 U. S. 1, where the self-exonerating clause in the contract there in question was similar to and just as strong as the clause here in question. In that case the [507] Supreme Court, citing its previous decisions, announced the law that, when a governmental body has asked for bids for excavation work and has represented the condition of the material to be excavated, and in its representations had misstated facts or had failed to state facts within its knowledge, it cannot escape responsibility by a clause of the contract in which it required bidders to examine the work for themselves and in which it said that its statements of facts were but expressions of its opinion and that it did not guarantee

(Testimony of Chad F. Calhoun.)

them. This, in effect, was a holding that representations made in such circumstances import a warranty, and also that, in consonance with familiar law, a person cannot contract against his own fraud."

Now, if your Honor please, this action is not an action on a contract. It arises out of a contract, but it is, in our opinion, a form of remedy for the breach. It is an action to recover for the reasonable value of work performed and material supplied under an express contract upon the ground that the plaintiff was induced by the representations of the defendant, which were untrue, to enter into the contract, and that the defendant breached the contract during its performance, and we offer to prove through this witness that misrepresentations were made to him, that these representations were passed on by him to the men who made the estimate for the doing of this work for the plaintiff. In that connection, your Honor, the plaintiff was not organized until May 15, 1934. So that you may understand the situation, a certain number of contractors, including the W. A. Bechtel Company and the Henry J. Kaiser Company, and four others, had certain conferences, at which they decided to, if the project was feasible, prepare and submit a bid. They employed certain men, including Mr. Calhoun and Mr. Larson, who will follow him on the stand, [508] to make an estimate of this project, and they did so. After the estimate was

(Testimony of Chad F. Calhoun.)

made and it appeared that these parties desired to submit a bid, they caused the plaintiff to be organized. The work which these men did and the estimates which they made were turned in to the plaintiff and were relied upon by the plaintiff in making this bid, and it is necessary to show these facts through this witness and show his examination and the reliance upon the information which was received. I offer to prove all of those matters through this witness and the following witness.

Mr. Wittschen: If your Honor please, I had no idea that the argument was going to take the range that it did in my objection to the question that I presumed in advance called for a conversation between this witness and an employee of the district.

The Court: The District Engineer?

Mr. Wittschen: The District Engineer.

The Court: He was the engineer on the job?

Mr. Wittschen: Yes. As far as this particular thing that is before the Court now, it is moot, because Mr. Tinning tells me that this map, which they seek to have admitted in evidence, has already been admitted in evidence as one of the maps that are attached to the Geological Report which your Honor admitted subject to our motion to strike. Following that the action on Mr. Marrin's part precipitated this controversy. I am trying to fix my record. But in view of the fact that Mr. Marrin has argued the pleadings which are not involved in

(Testimony of Chad F. Calhoun.)

this issue at all, I might say that they cannot, because we have filed an answer setting up certain things, that they cannot prove anything that is not put in issue by that answer. Of course that is elementary. There is no replication. That is not the point of my objection. The point of my objection is entirely misunderstood. While I am on [509] my feet, and in view of the fact that we are arguing this matter, I want to point out that in the case of McGovern et al v. City of New York the rule is laid down that in an action by a subway contractor against the city, parol evidence as to the construction placed by the contractor on the specifications when he was preparing and submitting his bid, and as to declarations made by a former subordinate employee of the City as to the meaning of the specifications, is inadmissible to aid in the construction of the contract and specifications.

Mr. Marrin: What is the citation of that?

Mr. Wittschen: McGovern et al v. City of New York, 195 N. Y. S. 925.

I have only scratched the surface on that particular subject. I think it is elementary in this State that you cannot come in and bind a public body by something that some employee may say in connection with the plans and specifications. A public body can only be bound by the action of its Board of Directors, and when it asks a bidder to submit a bid upon plans and specifications which it has prepared the bidder cannot come in and chat with the

(Testimony of Chad F. Calhoun.)

engineer and then come up and say "I understood something else."

In the Stanton Case, that Mr. Marrin cited, it holds no such thing. He, himself, told your Honor that there was quite a distinction there because the plan which was under discussion was a plan that was a part of the plans and specifications under which the bid was to be submitted.

Now, I will state in advance, so that we can immediately pass over a great part of Mr. Marrin's argument, that this objection is not made because of the nature of his pleading. The objection is made because of the introduction of this document, which really was the matter that was to be reserved and argued afterward. We [510] contend that he is trying to vary the contract between the parties. Now, in addition to that case which I spoke of I would like to refer to one other case before I deal with the main subject, and that is United Construction Co. v. City of St. Louis. All of these cases are in our brief, of which counsel and the Court have a copy. In that case there was a contract just as ours for the construction of a tunnel, and there was a question as to the remarks that were made by the engineer in charge and this is what the Court said:

"This shows an erroneous view of the law. Work of this character must be let on competitive bidding and to the lowest bidder."

Section so and so of the Missouri Statutes provides: "Requires that contracts of this character

(Testimony of Chad F. Calhoun.)

made by municipalities must be made in advance of doing the work and in writing, which shall specify the price to be paid. The contract cannot be modified, changed, or enlarged by verbal promises, and any such promise to pay more for the work than the contract provides is void. Municipal officers"—not employees—"have no such powers, and can do nothing except to see to it that the contract is complied with as made, and the work and material paid for as the contract specifies. The intent of the law is to place all bidders and contractors on an exact equality without chance of favoritism, and, when the contract is once made, the officers in charge of the work are executive and not contracting agents of the city."

One contractor or one bidder cannot go in and chat with the officer in charge and say that he got certain promises and certain inducements that no other contractor received.

The thing that I am really objecting to, hereunder is the matter [511] upon which your Honor reserved judgment, and I have no desire to argue the matter now. If your Honor would like that argument at this time we will make it.

The Court: It will not be necessary. I want to indicate to both sides that in these cases I am rather liberal in the introduction of evidence with this thought in mind, that both sides may protect their legal rights, they waive none of their rights, and

(Testimony of Chad F. Calhoun.)

then rule after the case is in and I have a picture. I allow testimony to go in subject to a motion to strike, unless it misleads either side in the presentation of the case.

Mr. Wittschen. We are not misled. I think both of us understand each other.

The Court: That is what I aim to do in every case presented, and I suggest it now, so that it may be helpful, and both sides have a record to protect their rights. I will allow the testimony to go in subject to a motion to strike over your objection.

Mr. Wittschen: And it is understood that we have an exception to your Honor's ruling?

The Court: Yes.

Mr. Wittschen: I will just state my objection hereafter without arguing it.

The Court: It is necessary to do that under the rule anyway so as to save your record. [512]

(After Recess)

The Court: You may proceed.

Mr. Marrin: I am not quite sure of the state of the record. This was offered, was it?

Mr. Wittschen: You have already got it in, subject to strike.

Mr. Marrin: Well, not exactly. This is a print made by Mr. Calhoun, from this.

Mr. Wittschen: Well, I make the objection that I made heretofore, on all the grounds stated.

(The chart was marked "Plaintiff's Exhibit No. 23.")

[Set forth in the Book of Exhibits at page 259.]

(Testimony of Chad F. Calhoun.)

Mr. Wittschen: Note an exception, please.

Mr. Marrin: Q. I again show you Exhibit No. 22. On your examination, you stated that that was not entirely correct,—that copy—an entirely correct copy of what you examined. Do you want to correct your testimony, in any way, in reference to that point? A. Yes, I do. During the recess, I examined it and found there is a photostatic print in the back of the blueprint which I examined, which is a copy of the print from which I made the tracing which you showed me. It differs from the blueprint which is attached to the report.

Q. The tracing you made is this photostat copy which is Plaintiff's Exhibit No. 23?

A. That is right.

Q. Mr. Calhoun, did you have any discussion with Mr. Boggs, concerning the finances of the District? A. Yes, I did.

Q. What did you say and what did he say?

Mr. Wittschen: We object to that as incompetent, irrelevant and immaterial, calling for hearsay testimony, and not in any way binding on the District or tending to prove any issue in this case.

The Court: This is preliminary to what?

Mr. Marrin: Preliminary to showing, if your Honor please, that Mr. Boggs, in the course of that conversation, brought out the engineer's estimate, the cost of the project, and exhibited it to Mr. [513] Calhoun; and that Mr. Calhoun made a copy of

(Testimony of Chad F. Calhoun.)

that estimate, which he later turned over to Mr. Larson; and we offer to prove those facts.

Mr. Wittschen: We add to the objection, furthermore, that the total of the engineer's estimate had been prepared and was on file, and that any conversation between the parties proves no issue in the case.

The Court: I will allow it, subject to your objection.

Mr. Wittschen: Note an exception, please.

Mr. Marrin: Q. Will you state what was said, upon the conversation? A. I discussed many features of the contract and specifications with Mr. Boggs, covering many items of interpretation upon questionable items of both the plans and specifications. Those are more or less routine and in the nature of my duties in preparing an estimate. Then I discussed with him, at great length, the finances of the District, going over with him the amount of money available from which the District could pay for the entire construction cost of the project.

Q. Did he show you his estimate of the cost?

A. Yes, he showed me that estimate.

Q. Did you make a copy of his estimate of cost, which he showed you?

A. I made a copy from the estimate of cost which he showed me. I made it in the District office.

Q. I show you a pencil memorandum, headed "Broadway Tunnel—Engineer's Estimate of Cost

(Testimony of Chad F. Calhoun.)

of Joint Highway District No. 13, copied 2-17-34, C. F. C.," and ask you what that is.

A. This is the note and original copy of my handwriting that I made of that engineer's estimate in the District office, upon that date,—February 17, 1934.

Q. To the best of your knowledge, is that a true copy of the estimate which Mr. Boggs showed to you? A. Yes, it is.

Mr. Wittschen: Pardon me, Mr. Marrin. Maybe I am a little confused. This says: "Above copied from typed copy shown to me by Mr. [514] Barclay in Mr. Boggs' office."

The Witness: Mr. Boggs—

Mr. Wittschen: I am not asking a question. I just wanted to bring that out.

Mr. Marrin: Q. Who showed you the estimate?

A. Mr. Boggs showed me the estimate. Mr. Boggs directed Mr. Barkley to make available for my use a table in an outer room there where I could examine not only the engineer's estimate in detail,—that is, at my leisure,—but, also, the geological report.

Q. Who was Mr. Barkley?

A. It was my understanding that Mr. Barkley was an assistant engineer to Mr. Boggs.

Mr. Marrin: I offer that document in evidence.

Mr. Wittschen: To which we will object as incompetent, irrelevant and immaterial, on the ground that it proves no issue, does not tend to, in any way,

(Testimony of Chad F. Calhoun.)

alter the contract between the parties and that the District and the contractor are bound by the contract as entered into between them, and not by any pre-bid conversation between any prospective bidder and an officer or an employee of the District.

The Court: I will allow it.

Mr. Wittschen: And on all the other grounds previously stated.

The Court: I will allow it, subject to a motion to strike and over your objection.

Mr. Wittschen: Note an exception, please.

(The document was marked "Plaintiff's Exhibit No. 24.")

PLAINTIFF'S EXHIBIT 24

Broadway Tunnel

Engineer's Estimate of Cost of Joint Highway District No. 13

(Copied 2/17/34.—C.F.C.)

Item No.		Unit	Quantity	Labor	Materials	Other Items	Total
1	Grading	30c	763,000	53,424	22,423	153,052	228,900
2	Overhaul	.005	8,100,000	11,340	8,250	20,910	40,500
3	Stru. Exc.	1.50	44,000	60,500	198	5,302	66,000
4	Shoulders	.02	362,000	2,534	3,630	1,076	7,240
5	Rein. Steel	.045	4,420,000	55,252	114,920	28,727	198,900
6	Struc. Steel	.05	445,000	4,005	12,549	5,696	22,250
7-8	Conc.	14.80	15,350	38,377	97,040	91,631	227,050
9-10	Conc. Pavs.	.165	68,100	2,625	8,605	116	11,346
11	Asp. Surf.	.08	44,000	88	3,146	285	3,520
12	Oil Mac.	.12	724,000	3,864	72,561	10,454	86,880
	(3,716 L.F., 4,300 S. ft.						
13-16	Curb-Gutter			277	1,234	1,887	3,400
17	Sidewalks	.16	21,000	525	1,597	1,237	3,360
18	Fill Protect		15	30	105	15	150
19-29	Pipe Cul.		9,340	1,309	15,522	6,220	23,051
30-39	Manholes, etc.	55.00	48	1,536	420	684	2,640
40	Drains		4,100	56	3,075	1,994	5,125

PLAINTIFF'S EXHIBIT 24 (continued)

Item No.		Unit	Quantity	Labor	Materials	Other Items	Total
41	Piping, 6"		2,020	272	1,360	2,407	4,040
42	Guard Rail		12,400	3,968	2,976	1,116	8,060
43	Hand Rail		640	90	528	662	1,280
44	Rip Rap		220	308		1,892	2,200
45	Metal Crib		46,000	276	4,600	874	5,750
46	Gravel Found.		330	102	716	831	1,650
47-48	Tunnel	$345.00	5,820	1,319,290)			(2,010,800
49	Cross Adits		322	5,131)	444,327	250,101	(8,050
50	Vent Bldgs.		L.S.	120,772	105,799	34,427	261,000
51	Vent Equip.		L.S.	12,000	80,000	16,350	108,350
52	Mech. Equip.		L.S.	12,000	20,000	2,000	34,000
53-4	Elect. Equip. & Carb. Mon. Det.		L.S.	41,000	140,000	21,620	202,620
55	Administration—Engr. & Inspection						173,923
							3,752,035

Above copied from typed copy showed to me by Mr. Barclay in Mr. Boggs' office.—C.F.C.

[Endorsed]: No. 20101-R. Plff's Ex. No. 24. Filed April 13, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(Testimony of Chad F. Calhoun.)

Mr. Marrin: Q. Mr. Calhoun, what did you do with this copy of the engineer's estimate that has been introduced in evidence as Plaintiff's Exhibit 24?

A. Some time later, after copying it for my own information, I turned it over to Mr. L. M. Larson of the W. A. Bechtel Company.

Q. Can you state the approximate date upon which you turned it over [515] to Mr. L. M. Larson?

A. It was during the first week in March of 1934.

Q. You stated that you copied the geological report, which is Plaintiff's Exhibit No. 22, pages 13 to 19, inclusive. What did you do with the copy which you made of those pages of the geological report?

A. I made a copy, typewritten, and turned the copy of that,—that copy,—over to Mr. L. M. Larson of the W. A. Bechtel Company.

Q. About what time?

A. At about the same time; at the same time I gave him the engineer's estimate in the forepart of March 1934.

Q. What did you do with the tracing, a photostatic copy of which has been introduced in evidence as Plaintiff's Exhibit No. 23?

A. I also turned over that original tracing to Mr. L. M. Larson, at the same time that I turned over the other documents.

Mr. Marrin: You may cross-examine.

Cross-Examination.

By Mr. Tinning:

Mr. Tinning: Q. When you saw Mr. Boggs, it was on February 17, 1934, was it not?

A. I am not sure whether I saw Mr. Boggs on that date or not.

Q. The memorandum, the tracing, bears date in your handwriting,—just to refresh your recollection,—2-17-34? A. Yes.

Q. These are your initials, are they not?

A. Yes.

Q. You say at that time that you discussed the finances of the District,—that is, the funds that were available, or expected to be available, to pay the contractor who took this job?

A. I am not sure that I discussed it on that particular date; but right around that.

Q. How many times did you visit the District office on the occasion of these transactions that you testified concerning?

A. I don't recall exactly; but I was over there several times during that period in February, when I was making an intensive study of the plans. [516]

Q. Where was your office at that time?

A. 1522 Latham Square Building.

Q. Whom were you employed by?

A. Henry J. Kaiser Company.

Q. Mr. Kaiser is president of the Six Companies at this time, or at that time?

A. I really don't know, at that time.

(Testimony of Chad F. Calhoun.)

Q. Did you ever know he was president?

A. Well, so far as I knew, Mr. S. D. Bechtel was president of the Six Companies of California, it was my understanding. I believe that Mr. Kaiser became president some time later; but I am not sure of that.

Q. When you talked with Mr. Boggs about the financing of this District matter, you had, from what you told us about it—you had in mind that you satisfied yourself that there would be funds there available to pay the contractor?

A. No; I do not recall I had any such thing in mind at all.

Q. What was your purpose in discussing it with Mr. Boggs?

A. Well, just to see if they did have enough money to pay for the entire project.

Q. Then, shouldn't your answer to my preceding question be "Yes"? I am not trying to jockey you, Mr. Calhoun.

A. Maybe I better have the question repeated?

Q. Mr. Calhoun, all I was trying to do was clarify what the purpose of the conversation was,—your discussion of finances was for the purpose of knowing whether or not there would be funds to pay the contractor who took the contract?

A. Yes.

Q. At that same conversation, or one of these other conferences that you say you had with Mr. Boggs, you discussed the plans and specifications,

(Testimony of Chad F. Calhoun.)

you discussed the geological report, and you also discussed the estimate of breakdown of quantities and cost of the various elements that entered into this project, with him, did you not?

A. I discussed the various features of the plans and specifications and the [517] geological report, but not the breakdown of the estimate of cost, not in detail. Mr. Boggs supplied that information to me in connection with our discussion regarding the finances of the District.

Q. Then, on the same day that you discussed the finances of the District, you also discussed this sheet which has now been introduced,—the matters which are involved in that sheet that has been introduced as Plaintiff's Exhibit 24?

A. No; I am not sure whether it was the same day or not.

Q. What kind of a document was it that Mr. Boggs displayed to you?

A. You are referring now to—

Q. To what we have just been talking about,—the estimate made of the breakdown.

A. As I recall it, it was a typewritten sheet.

Q. One sheet, or in a book?

A. Well, to the best of my recollection, it was a sheet that was attached to several other sheets. I don't recall it was a book that was made available to me.

Q. Didn't you say, a few moments ago,—just to refresh your recollection, Mr. Calhoun,—that you

(Testimony of Chad F. Calhoun.)

went into another room, Mr. Barkley got out a book and you copied this data?

A. No; I said they made available to me the estimate.

Q. Well, what form was it in? Was it in several sheets, or were there six or seven or fifty sheets?

A. That is putting quite a strain on my memory. That was about four years ago, and I have examined many reports since then, and it is a little difficult for me to state definitely what form that was in. I will say this: that, at the time I was talking to Mr. Boggs, I do believe he had a copy of the estimate in a looseleaf book, which he referred to. Then, when he directed Mr. Barkley to make this information—the geological report and the estimate—available to me, I don't recall whether it was a book or whether it was another copy. [518]

Q. Do I understand that the copy of your original notes purports to be a copy of what was on the sheet that you saw there, even to the title, "Broadway Tunnel, Engineer's Estimate of Cost of Joint Highway District No. 13"?

A. Well, that is my own handwriting; and I cannot say that, as to the title, it would be exactly complete—only in keeping with my usual habit in such matters—I copy off enough to thoroughly identify it to my own satisfaction at that time.

Q. Was it all written at the same time? I am

(Testimony of Chad F. Calhoun.)

referring now to Plaintiff's Exhibit 24,—Your original memorandum.

A. It was all written at that particular time, with the exception of certain items here, under this column headed "Unit."

Q. The column headed "Unit" is for prices attributed to the quantities, is it not?

A. That is right.

Q. When was that written in?

A. That was written in after I returned to my office.

Q. Where did you get those figures?

A. By dividing the total estimated cost, over here, by the total shown against the quantity cost.

Q. In other words, you took the right-hand column, which is "Total," and divided the "Quantity," and that is the total in dollars, is it?

A. Well, that is the total in dollars, yes.

Q. Dividing the quantity with the unit, the various prices, and got the price per unit?

A. There is some question in my mind as to how that unit was arrived at. I am just trying to endeavor to give you a correct answer, because, as I say, it is of some standing. To the best of my recollection, that was the manner in which I determined the units there.

Q. So that, in this exhibit, you did not put down, from the records of the District, the unit prices that appear in the first column to the right of the various items as shown; those were com-

(Testimony of Chad F. Calhoun.)

puted by you, [519] by some method, and put down, yourself?

A. I believe that is correct, unless these units did show on the original copy. It is my recollection, though I worked those out, myself. If they appeared on the original, I also copied them from the original, that was submitted to me.

Q. Well, it is quite apparent, from looking at this, that those units—the figures were not written by the same pencil at the same time that the remaining figures on that sheet were made; isn't that true? A. It appears to be that, yes.

Q. There are unit prices attributed only to certain items as shown here. Now, with respect to the memoranda at the bottom of the page: "Above copied from typed copy showed to me by Mr. Barkley in Mr. Boggs' office"—I am now referring to Plaintiff's Exhibit 24—Was that written at the same time, in Mr. Barkley's office, or Mr. Boggs' office, or was that put on at a later time?

A. That was put on as soon as I returned to my office.

Q. Those unit prices: you are uncertain, at this time, as I understand it, that they were computed by you, or whether they were found on the document from which you made the remainder of this copy?

A. That is right; but my best recollection is I divided the total in dollars by the quantities shown, and obtained that result.

(Testimony of Chad F. Calhoun.)

Q. In any conversation with Mr. Boggs that you had, you were advised, were you not, that the District would not receive bids,—I believe the date was set in March,—the notice would be recalled, due to some PWA requirement; you were advised, at that time when you talked to him, that the bids,—the actual bids,—would be called at some later date on the same plans and specifications?

A. No; I don't recall any such statement.

Q. You don't recall that?

A. No; I do not, at the time I was interviewing Mr. Boggs, at this particular time. [520]

Q. You have no memory of that information coming to you at that time?

A. No. I think there was some question that, under the discussion on the finances of the District —I am just recalling now—that there was pending before the courts a suit for the validity of the District bonds.

Q. To refresh your mind further: did you discuss the fact that there was a proceeding to be brought, to determine the validity of the bonds in this District, and that that was to be brought and it had not been commenced?

A. Well, I think you could answer that better than I can.

Q. I am trying to refresh your memory as to that conversation. But your testimony now is, in the present state of your memory, you did not re-

(Testimony of Chad F. Calhoun.)

ceive any information at the time you were going over the District figures and specifically estimating the outside work, that the bids would not actually be received at the time the notice called for, that there would be a notice withdrawing that matter, that would and it would be republished ?

A. As I recall it, it was around the first part of March when we received such information.

Q. But you did receive such information just before you turned the papers over to Mr. Larson and whoever else you turned it over to?

A. Yes.

Q. Is the reason you turned them over that the matter was being delayed?

A. No, no; not at all.

Q. Was Mr. Larson also working for Mr. Kaiser at that time?

A. Mr. Larson, at that time, was, I believe, working for the W. A. Bechtel Company.

Q. Another one of the units ultimately joined in this proceeding? A. Yes.

The Court: We will take a recess now until two o'clock.

(Thereupon, an adjournment was taken until 2 o'clock p. m., this date.) [521]

(Testimony of Chad F. Calhoun.)

Afternoon Session—2:00 O'Clock.

CHAD F. CALHOUN,

Cross-Examination (Resumed).

Mr. Tinning: Q. Mr. Calhoun, in looking over my notes that I took of your testimony this morning there are one or two things I would like to make clear, or that perhaps I am not clear on, myself.

I understood you to say you were employed when you made this investigation in February, 1934 by Henry J. Kaiser. Were you employed by Mr. Kaiser personally, or by the Henry J. Kaiser Company?

A. It may have been the Kaiser Paving Company at that time, I am not exactly sure. My actual conditions of employment were made with Mr. Kaiser, personally.

Q. He made the arrangement with you.

A. Yes.

Q. You don't recall at that time whether you were an employee of the Henry J. Kaiser Company or the Kaiser Paving Company?

A. I think my employment at that time was possibly directly with the Kaiser Paving Company.

Q. Did you have anything more to do with the transaction or investigation of this work than you have explained this morning, starting sometime in February, 1934 and concluding in the first week, or the first few days of March of 1934 prior to the

(Testimony of Chad F. Calhoun.)

time the bids were actually received by the District on May 22nd, 1934? A. Yes, I did.

Q. What did you do after the time that you turned over the papers that you have referred to to Mr. Larson?

A. I completed an estimate on all of the outside work. By the outside work I mean all of that work not incorporated in the tunnel construction proper.

Q. You had worked for Mr. Kaiser prior to February, 1934? A. Yes.

Q. How many years?

A. It was not a matter of years that I worked [522] directly for Mr. Kaiser. That particular term of employment commenced on January 2, 1934.

Q. In connection with this work particularly, or generally for his company?

A. Generally for his company.

Q. Do you recall whether you saw the plans and specifications for this work previous to the time you had the conference with Mr. Boggs which, I believe, was on the 17th of February, 1934?

A. It is my recollection that I did.

Q. Isn't is a fact, or don't you know as a fact, that the Henry J. Kaiser Company secured the plans and specifications from the District on the 31st day of January, 1934?

A. I don't know the exact date. I secured those plans and specifications, myself.

Q. You did?

(Testimony of Chad F. Calhoun.)

A. For the Henry Kaiser Company.

Q. The first set? A. Yes.

Q. That was secured?

A. That is right. I talked to Mr. Boggs about it over the phone about the exact time they would be available.

Q. After examining the plans and specifications that you had secured for the Henry Kaiser Company you then went and had this conference with Mr. Boggs?

A. Well, you speak of "this conference." I don't recall that I mentioned any particular conference. I think I saw Mr. Boggs several times.

Q. You testified this morning that you had a conversation with him and that after you finished that conversation with him regarding the financial set-up, breakdown of the estimate, etc., you went into another room and you copied these figures which you made the pencil memorandum of, and you have a date on there as the 17th of February, 1934. That is Exhibit No. 24, that I am referring to. Did you have any conference with Mr. Boggs prior to that date? A. I believe that I did.

Q. Referring now to the conference that you believe you had, when [523] was that with respect, how many days before was it with respect to February 17, 1934, when you copied what now forms Exhibit 24? A. Will you repeat that, please?

(Question read.)

(Testimony of Chad F. Calhoun.)

A. I will answer that in this way: It is difficult for me to recall the exact date except in this one instance, and that is the time which I copied the estimate which has been introduced here and this geological report. The reason I am so definite as to that date is because of the particular notation I made on my own notes at that time. These other conferences I am unable to state the exact time or day which they occurred.

The Court: Whether they were before or after, you are not prepared to say?

A. No, I am not, but I think most of them preceded or were right around that particular day, February 17th. I am quite confident of that.

Mr. Tinning: Q. You have no definite recollection of conversing with Mr. Boggs subsequent to that date of the 17th when you made these memoranda that you have here, after that time?

A. I don't have any definite recollection. I may have had, and I may have had some before.

Q. How long did you continue to work for Henry J. Kaiser or the Kaiser Paving Company, whichever your employer was at that time, how long did you continue?

A. Until December 1st, 1934.

Q. When did you complete your estimate of the outside work?

A. I had the estimate on the outside work virtually complete along towards the latter part of February or the 1st of March, with the exception

(Testimony of Chad F. Calhoun.)

of a good many sub bids, of course, which were necessary for the portal buildings, and some of the other work. It was completed later, following that, about the time of the second call for bids.

Q. By "completed later" you mean you secured the sub bids for [524] things like the ventilation buildings, and matters of that kind?

A. And the electrical work; matters of that kind —structural steel work and reinforcing steel, and matters of that sort.

Q. You recollect that the work items number 1 to 47, inclusive,—what we call the "outside work," —generally refer to—Do you know what they generally refer to?

A. No; I would have to look at that bid sheet to answer you definitely on that.

Q. I will show you Exhibit 14, Mr. Calhoun, and ask whether that refreshes your recollection on the outside work, with respect to Items 1 to 47.

A. Yes, that is right; Items 1 to 47. Well, however, I did prepare an estimate on the matters covered in Items 51 and 55.

Q. Mr. Tinning: And the witness points to Items 48 and 49, Tunnel Construction Type "A" and Type "B", and said "Not those."

The Witness: 48, 49 and 50.

Mr. Wittschen: Does he mean 51 to 55, or 51 and 55?

The Witness: Inclusive, yes.

(Testimony of Chad F. Calhoun.)

Mr. Tinning: Q. In order to understand the matter clearly, so the record will show it: You prepared an estimate of Items 1 to 47 and also Items 52 to 55? A. 51 to 55.

Q. 51 to 55? A. Inclusive.

Mr. Marrin: Is that inclusive, Mr. Tinning?

Mr. Tinning: Yes.

Q. What was the amount of your estimate of the outside work, Items 1 to 47?

A. That, I do not know at this time.

Q. What did you do with it?

A. I turned that estimate over to the W. A. Bechtel office.

Q. You turned it over to whom?

A. To the W. A. Bechtel office.

Q. It was turned over, I think you testified this morning—you gave certain papers to Mr. Larson; is that right? A. That is right. [525]

Q. This bid that you had prepared on these outside items was included with the other papers that you gave to Mr. L. M. Larson?

A. No; it was not; I did not turn that over until later.

Q. When did you turn it over, if you remember?

A. I believe it was around the latter part of April, 1934.

Q. To whom did you deliver it, if you recollect?

A. There were quite a few concerned at that time; I believe there was Mr. Larson, Mr. Hindmarsh and Mr. Shaw.

(Testimony of Chad F. Calhoun.)

Q. Mr. Calhoun, I asked whom you delivered it to—Do you recollect?

A. I was just answering your question, Mr. Tinning. I said there were quite a few concerned that were there in the room together, and I turned it over officially to the W. A. Bechtel Company.

The Court: He said there were three present.

Mr. Tinning: Q. Do you remember which individual you turned it over to? You say you turned it officially over to the W. A. Bechtel Company. Who got it?

A. Well, I am telling you all of those individuals were present when I turned it over. There may have been others there; but I remember definitely Mr. Larson, Mr. Hindmarsh and Mr. Shaw.

Q. Was your estimate larger than the bid that was put in by the Six Companies on May 22nd?

A. My estimate was the estimate of the bare cost alone of the construction of that work, and did not include complete overhead estimates, nor did it include any contractor's profit; so, consequently, it is a little difficult for me to answer your question.

Q. I assume, from your answer, that you intend us to understand that was added to the bid for profit and overhead; so the figures that you gave were less than the amount of the bid on those items which you estimated?

A. Well, I could not state definitely, without an actual comparison of the bid, whether that is so or not.

(Testimony of Chad F. Calhoun.)

Q. You do not remember any item of the 54 items that you estimated, [526] and upon which a bid was submitted by the Six Companies—you have no recollection, with respect to any item?

The Court: Read that question.

(Pending question read by the reporter.)

The Witness: A. Well, may I explain that? I submitted my estimate to W. A. Bechtel Company. At that time, they were forming the Six Companies of California that submitted the bid; just what was done with that estimate, I know some changes were made in the estimate which I submitted,—a good many changes were made at last—the exact figures that were used, I am not at this time familiar with.

Q. You said Mr. Hindmarsh, Mr. Shaw and Mr. Larson were present as the W. A. Bechtel Company representatives at the meeting where you turned over this estimate?

A. Well, at a meeting—it was informal, as things were always quite informal—just merely a trip I made to their office.

Q. This meeting was at the W. A. Bechtel Company office?

A. Yes—in the Stock Exchange Building here.

Q. Did you keep a copy of your estimate?

A. I did not keep a copy of it; but I turned a copy over to the Henry Kaiser Company.

Q. You have no copy of your own? A. No.

Q. You turned over a copy to your employer,—the Henry J. Kaiser Company?

(Testimony of Chad F. Calhoun.)

A. That is right.

Q. You continued with the Henry J. Kaiser Company, as an employee, until the end of 1934; is that correct?

A. No—Until December 1, 1934.

Q. Referring to Exhibit No. 24, Mr. Calhoun, as I understood it this morning you were not certain of the title—that the title on the exhibit which you have there,—"Broadway Tunnel, Engineer's Estimate of Cost, Joint Highway District No. 13," —was the same [527] title on the document from which you took the figures that you used in the last five columns on the page—

A. Is that a question?

Q. Yes. Whether I am correct in my understanding that you are not sure of the title?

A. I am not sure, particularly, of the exact wording of the title. I am sure of this: that this is a copy of the estimate supplied to me in Mr. Boggs' office,—a copy of the copy which we had previously discussed.

Q. Are you sure the title is a copy of the document from which you took the figures?

A. I have said, very definitely, I am not sure the wording is exact.

Q. In other words, when you say it is a copy of the estimate, you refer to the figures which you used for the estimate?

A. I refer to the figures, to the item numbers and to the description of the work.

Q. And the units were something you put in, yourself, after computation?

A. That is my recollection that I did, yes.

Q. I will ask you to look at this document which I hand you, and see whether that refreshes your recollection as the document which you saw on February 17, 1934.

A. Yes, that is. Mr. Tinning, it is not my recollection that the copy that I worked from was in that particular form. So far as the figures are concerned, I don't doubt that; but I mean—

Q. No; I am trying to see where the figures came from. A. Well, that is all right.

Q. I don't know what you saw at that time, Mr. Calhoun.

Mr. Tinning: Gentlemen, I don't care to encumber the record with a voluminous document. These figures Mr. Calhoun has taken and testified to, under Exhibit 24, apparently came from page 22 of the PWA application made by this District and filed on August 29, 1933, with the United States. We have checked the figures and the [528] units, and they are identical with those appearing on this memorandum of Mr. Calhoun's exhibit for the columns that he testified here—inserting the computations.

Mr. Marrin: Well, I have no objection, Mr. Tinning, to your putting that page in from the report, if you desire to; but I understood the witness to say that it was not his recollection that he copied it from a bulky document of this sort.

Mr. Tinning: No; I understand that. What I want to do is to have the record clear that the figures which he saw were the figures that were filed by the District with the United States on August 29th in connection with the grant application.

Mr. Marrin: Well, I would agree to this: that you may put in evidence, if you desire, the figures that appear in your application to the PWA, and you can draw any inference from that, upon the testimony of the witness, that you desire. I don't know whether he saw this or whether he saw something else.

Mr. Wittschen: He does not appear to know it. We could read those into the record.

Mr. Tinning: If your Honor please, we wish to offer as Defendant's Exhibit "A," page 22 from the application made by Joint Highway District No. 13 of the State of California to the United States PWA, Application No. 2231, which is a breakdown of the various quantities and estimates of the labor and material that would go into this job, and the figures on Exhibit 24 down to the total are identical with the exhibit we are now offering.

The Court: Let it be admitted and marked "Defendant's Exhibit "A."

(Document was marked "Defendant's Exhibit A.")

[Set forth in the Book of Exhibits at page 321.]

Mr. Tinning: I have no further questions.

Mr. Marrin: I have no further questions. [529]

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Vol. III

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

SIX COMPANIES OF CALIFORNIA, HARTFORD ACCIDENT AND INDEMNITY COMPANY, ET AL., PETITIONERS,

vs.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR CERTIORARI FILED JULY 22, 1940.

CERTIORARI GRANTED OCTOBER 14, 1940.

No. 9113

United States

Circuit Court of Appeals

For the Ninth Circuit.

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

Transcript of Record

In Eight Volumes

VOLUME III

Pages 469 to 982

Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

PARKER PRINTING COMPANY, 545 SANSOME STREET, SAN FRANCISCO

LEWIS MICHAEL LARSON,

Called for the Plaintiff; sworn.

Mr. Marrin: Q. Mr. Larson, will you state your experience in construction work?

A. I began in the year 1900 with the survey party on the location of the present Salt Lake and Los Angeles Railway. I continued with that survey for three years; at the end of which time, I joined the Southern Pacific Company on its construction across the Great Salt Lake, remaining there until 1905, in the early part of the year, when I was transferred down to the tunnel work that was going on, or was about to begin, for the Southern Pacific on the Bayshore section. I was stationed at what was known as the Six Mile House, which is on the southerly end of Tunnel No. 4, and was given the position there of general foreman. My work comprised the tunnel work from that end of the town, followed with a fill of the part of the Bay which now forms the Bayshore Yard, some of the track-laying, the ballasting, and, after that was completed, the erection of the first unit of the terminal building. That carried me to November, 1911, when the Southern Pacific transferred me up onto the Willamette Pacific Cutoff from Eugene to Marshfield in the position of general foreman in charge of the bridge department for the Company. I remained at that position until 1916, when the Southern Pacific part of the construction was completed, and when the main bridges had been subcontracted, I mean, let out for sub-contract, I was appointed chief inspector. I continued in that po-

(Testimony of Lewis Michael Larson.)

sition until 1917, when the effect of the War caused the suspension of operations by the Southern Pacific in the construction department. In 1918, the Foundation Company of New York engaged me as their superintendent on their shipbuilding program at Tacoma and later at Victoria; completed in the last of 1919; in 1920 and part of 1921, I [530] engaged as a contractor in building operations in the City of Portland; in 1923, the Spring Valley Water Company engaged me as superintendent on the construction of the aqueduct in Niles Canon. That was completed that year. In that fall Mr. W. R. Fontaine employed me as superintendent of some work that he was doing for the Pacific Electric Railway of Los Angeles, Long Beach, San Pedro, and environments, in that vicinity, in the construction of retaining walls and trackage. During that period of time I estimated for W. R. Fontaine and Twohy Bros. Company the Hollywood tunnel, then known as the Hollywood Tunnel, now known as Subway Terminal Tunnel. When the award of the contract was made to them I was made superintendent. I remained with that work until its completion in the early part or possibly the middle of 1925, and as I now recall it at that time I engaged with W. R. Fontaine in the construction business as a partner. We built a bridge for City of Los Angeles, one for the Panama Petroleum Corporation, did considerable pipe and track work for the Panama Petroleum

(Testimony of Lewis Michael Larson.)

Corporation, for the Pacific Electric, and for some private individuals, and also I should remark water tunnels. At the completion of that work Twohy Bros. Company and W. R. Fontaine, who was associated with them, asked me to come to San Francisco and estimate the present Duboce, now known as the Sunset Tunnel. I completed the estimate of that tunnel, but Twohy Bros. decided not to bid on it because they were engaged in so much for the East Bay Utility District that they thought they had better confine their activities to the eastern shore of the bay. They engaged me to estimate the Claremont Tunnel for them, but the estimate that I turned in was not the one on which they bid the job and they were high. As referred to by counsel yesterday, the McDonald & Kahn people were successful, or, rather, the low bidders on [531] that work, and when they were relieved of it and the next lowest bidders were awarded the job I was employed as superintendent. I continued with them until 1926 or 1927, and if I recall correctly it was December, 1929 when that work was completed. In the spring of 1930 Mr. Mead asked me to join him on construction work on a salary and percentage, which I engaged to do. The first job we estimated was the Oyhee Tunnels in Oregon. We were not successful in landing those tunnels, and I made an estimate for him of the three first units of the Figueroa Street Tunnel in Los Angeles. We were

(Testimony of Lewis Michael Larson.)

not successful in getting that work. I estimated the sewer tunnel here in San Francisco for him, which he also did not get. The next was the Newcastle Tunnel at the City of Newcastle, for the California Highway Department, and as I recall it the next was the Wawona Tunnel, and that job we were not successful in landing. At that time the Packatowne engaged me to rebuild their plant at Bradley, California. That was sometime about the first of December, as I recall it now, in 1930. In 1930 Sydney Junkins Company of New York and Canada telephoned me, asking me to join them in estimating a tunnel under the city of Vancouver, B. C., that was being built for the C. P. R. The estimate was completed in the latter part of December, and I was engaged by Lindgren-Swinnerton people to estimate the Boulder Canon Tunnel, which the Six Companies later on received the award for and completed the job. My next association, I think, was with Merritt, Chapman & Scott. They asked me to construct three tunnels for them in the vicinity of Ventura, California, which I did, completing them, if I recall correctly, in the latter part of 1932. I then moved to Los Angeles and estimated for Lindgren & Swinnerton the Outlet Tunnel from San Gabriel Dam No. 1. That was followed [532] by an estimate of the Hetch Hetchy, the completion of the Hetch Hetchy Tunnels that were then being offered to contractors. After completing that my

(Testimony of Lewis Michael Larson.)

next estimate I think was this tunnel over here, under the Island, Yerba Buena Island, in connection with the Oakland-San Francisco Bay Bridge.

Mr. Tinning: Q. Mr. Larson, will you tell me who you did these various things for? The last one I think was Merritt, Chapman & Scott, and then Lindgren & Swinnerton.

A. Lindgren & Swinnerton on the Island Tunnel.

Q. What about the Hetch Hetchy?

A. The Hetch Hetchy was also for Lindgren & Swinnerton, and the Arundel Company of Baltimore, Silas Palmer and Barrett & Hilp. Following that I think my next was the estimate of the San Jacinto Tunnel of the Metropolitan Aqueduct, and the Metropolitan Water Company of Southern California, for a group of contractors who bid under the name of the Metropolitan Engineering Corporation. Following that—possibly I am a little out of order, but it is immaterial. Following that I estimated for the Walsh Construction Company the Val Verde Tunnel, the Bernisconi Tunnel, the Iron Mountain Tunnel, the Cottonwood Tunnel, and the Coxcomb Tunnel in the Southern California Water Department, known as the Metropolitan Water District of Southern California. I was then engaged by W. A. Bechtel Company to estimate for them the Broadway low level tunnel over here in Oakland, in No. 13 Highway District. As I recall it, my employment with them began on the 25th of February, 1934. I arrived from Los Angeles I believe upon

(Testimony of Lewis Michael Larson.)

the morning of the 26th and proceeded immediately to their office in the Stock Exchange Building, where I was given plans and specifications for this tunnel and directed by Mr. Stephen Bechtel, the President of the Company, to work in collaboration with Mr. Fontaine on the estimate of that work [533] particularly the tunnel.

Q. Is that the tunnel, Mr. Larson, which is described in the contract and Plaintiff's Exhibit No. 3 which is involved in this case? A. Yes.

Q. Will you proceed to state what you did in making that estimate?

A. The first day I spent in reading the specifications and looking at the plans. If I recall correctly the next day in company with Mr. Fontaine I visited Mr. Boggs, the District Engineer, as the plans indicated that he was the engineer who was in charge of the work. It was important to have information directly from him in regard to his thought on various phases of the work.

Mr. Wittschen: So that there will be no mistake about the record, it is understood that the objection to this testimony of Mr. Larson will run in the same manner as it did to Mr. Calhoun's; in other words, we do not want to interrupt, knowing what the Court's ruling will be, but we will make the objection on all of the grounds stated to the testimony of Mr. Calhoun, starting with this last question.

Mr. Marrin: As I understand, your objection is to anything that Boggs said to him?

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: On all of the grounds stated to the previous questions.

The Court: Let the record show the objection and it will be subject to the same ruling, motion to strike, and an exception.

Mr. Marrin: Will you proceed?

A. I do not recall the exact date, but it was probably about February 22 that I called in company with Mr. Fontaine on Mr. Boggs and told him that the purpose of our visit was to discuss the project in a general way, and if I remember particularly at this time the thought developed in my mind that I would like to have a little clarification on the concrete method, and I asked Mr. Boggs if [534] we were successful in getting the bid could we pour the lean or concrete with the main part of the lining? Further in the specifications I had noticed the walls were boarded up to point not lower than seven feet, that is, the meeting line of the arch and that arch section, and at a later time I asked Mr. Boggs if there would be any objection to pouring it at one time, and he said there would be none. In looking over the plans I had noted that the long radius formation of the side walls from the radius of the arch gave the tunnel position a sort of battered position, that is, it kind of sloped in; that had an important bearing in a way when connected with the other items in the specifications in helping me to form a conclusion. I drew from that the conclusion that it was reasonable to esti-

(Testimony of Lewis Michael Larson.)

mate from the type of construction that no inordinate pressures might be expected from the side on account of the shape of the tunnel.

Mr. Tinning: If your Honor please, I move that the last answer of the witness go out as a conclusion and not responsive.

The Court: The conclusion may go out.

Mr. Marrin: Q. Will you state just at this time what you did, confining your testimony to what you did and said to the District Engineer or to his representative?

A. Not any conclusions that I drew, do I understand.

Q. No, not at this time. I will ask you about those later.

A. Well, in this discussion I think we asked—I say "we," because Mr. Fontaine accompanied me,—Mr. Boggs about the general lay out of the project. He told us where the tunnel began and about where it ended, and directed us to go out to see Mr. Gelston, whom we would find at the east end of the proposed tunnel. We drove out over the old Tunnel Road, through the old tunnel, and down to the point indicated by Mr. Boggs, and saw Mr. Gelston. Mr. Gelston explained— [535]

Mr. Wittschen: Pardon me. I think the question has been answered. He is about to give conversation.

The Court: Proceed by question and answer.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. What did Mr. Gelston tell you?

Mr. Wittschen: Objected to as immaterial, irrelevant, and incompetent, and not binding upon the District, calling for hearsay, and not bearing on any issue in this case.

The Court: The objection will have to be sustained.

Mr. Marrin: Q. Who was Mr. Gelston?

A. We did not have any definite information as to who Mr. Gelston was, but drew the inference from Mr. Boggs—

Mr. Tinning: I would like to take exception to that.

Mr. Marrin: Q. What did you do then?

A. Could I refer again—

The Court: Q. What you, yourself, did.

A. I viewed a test pit that had been dug sometime prior, just how much prior to the visit I do not know, but it was in the vicinity of the present Claremont Avenue Bridge and portal building. It was a test pit as I recall it now approximately four feet square and possibly eight feet deep; I could not tell you how deep, it had some water in it. The indications on the wall of that pit were that the ground was firm, it was in what is known as Orindan formation. I am a little lost on the limitation there.

The Court: You can state what you, yourself, did at that time.

(Testimony of Lewis Michael Larson.)

A. I looked over the project or the physical aspects in a general way on the east end.

Mr. Marrin: Pardon me just a moment. Are you willing to stipulate that Mr. Gelston was the Assistant Engineer of the District at that time?

Mr. Tinning: Yes.

Mr. Marrin: In view of that stipulation I am going to ask [536] the question again as to what Mr. Gelston said to you when you saw him at the east end of the tunnel.

Mr. Wittschen: Objected to on all the grounds previously stated.

The Court: I will allow it, it is preliminary under the same rule that I allowed the other, and an exception.

Mr. Wittschen: Note an exception.

The Court: So that either side is not misled to your injury, and I cannot conceive you can be injured, since you have made your objection, but if you want a final ruling on this testimony and insist upon it I shall rule. But, as I indicated to you, what I do, not only in this case, but in the other ones, both sides are protected legally upon the record and you do not waive any right.

Mr. Wittschen: I understand that at a later time we may argue it.

The Court: All right, proceed.

Mr. Marrin: Q. Will you state, Mr. Larson, what Mr. Gelston said at the time you saw him at the east end of the tunnel?

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: I interpose the objection to all of these questions; I will make the same objection to that on all the grounds stated.

The Court: The same ruling, and so that the record may be protected note an exception following it.

Mr. Wittschen: Exception.

Mr. Marrin: Proceed, Mr. Larson.

A. As I recall the conversation Mr. Gelston merely indicated that this test pit had been dug at that point for an observation, to determine what the ground conditions might be. He indicated or said that the water that was in the bottom of the pit might be rain water, it might be overflow from an adjacent creek. That is my recollection of the conversation. I pointed out to Mr. Fontaine, who was [537] less familiar with the Orindan formation than myself, some exposures of the Orindan, and made an arrangement later on for a further inspection of the Orindan formation at a future date. At the termination of this investigation at the portal at this particular time we drove back through the old tunnel, and it is my recollection at the present time that we parked our car at the portal of the old tunnel on the east end.

Mr. Marrin: Q. Can you state where the location of that old tunnel is, relative to the tunnel which is involved in this contract approximately?

A. Yes, it is a little bit to the east of the present

(Testimony of Lewis Michael Larson.)

low-level Broadway Tunnel, and at an elevation, I should say, between 200 and 300 feet higher. That could be determined, however, from the data. The reason I was interested in it was it passed through a formation that would be a very similar formation to a large portion of the formation that appeared that the new tunnel was going to be projected through. If my recollection is correct we parked our car at the east end of the tunnel, and walked in to make the inspection on this particular day of the formation. I noticed that at each portal that the timber was depressed a little bit, and at the point if there had been a material weight on it the tunnel would have collapsed.

The Court: That is the old tunnel?

A. In the old tunnel. There was very little evidence of much repair work, indicating to me that there must have been very little weight. I appreciated that this depression of the timber might come from a development of weight with years passing by and the wash of material, and it also indicated that there could not be very much of a menace in the formation, otherwise the tunnel would have collapsed. In the major portion of the tunnel which lay in what is, I understand, Chert formation, there was lagging overhead, that is, it was covered with timbering and checks, and over those checks [538] were timber that are termed lagging, and over a portion of the side, all of the side could not be seen, but there were long stretches in there where you

(Testimony of Lewis Michael Larson.)

could see the formation, and there were places there where there had been no attempt at all at lagging other than to prevent spalling into the traveled portion of the tunnel, and you could make a fairly good inspection of the formation in that section. I noted and mentioned to Mr. Fontaine that there was no weight on there and no maintenance, that is, no replacement timber during the period since the tunnel was constructed, which I understood was in 1903. We then got back into our car and proceeded through this old tunnel and parked at a wider place in the road west from this old tunnel. Mr. Gelston there told us that there was a test pit over the future tunnel from 100 to 150 feet down the grade from the crossing of this old Tunnel Road. He did not take us down there, but Mr. Fontaine and I went to look at it. The test pit was apparently about six feet in diameter at the top, possibly two feet at the bottom, and I formed the idea at that time that it would not exceed 8 feet deep. The formation was badly broken and we could form no conclusion as to the character of the material that might be encountered in the tunnel, and we proceeded back to our cars. We then drove down the Tunnel Road to a point where there was a side road that led into the west portal of the projected tunnel. At that point we parked our cars again and walked along the old road. Mr. Gelston pointed out such parts of the construction as were visible from that point.

(Testimony of Lewis Michael Larson.)

I might mention here that our thought was to look at a drift or a small tunnel that the specifications had mentioned had been driven in that drift. I wish also to state at this particular time, because it has an important bearing, that I will bring out later, that there was also a geological report that could be read [539] in the District Office. We proceeded to the proposed location of the tunnel. Mr. Gelston pointed out about where the tunnel portals would be. We went up on the ground over the tunnel in the vicinity of the portal with a view to try and determine if we could what the formation might be in the tunnel. I noted a creek running over what would probably be near the portal of what is now, I think, termed the South Tunnel, it was the up-grade tunnel. At that time there was not a great amount of water pouring over it, but the wash in this creek indicated that there would not be much trouble in cutting, I mean that the material was not of that nature where it could be readily removed by the flowing water; from the North Tunnel Portal, on the bluff of the hill, the hill had slid away there and it had a high elevation above the south tunnel, and I tried to form a conclusion there by going around in the rock and seeing whether that was the natural formation; there was nothing really definite that could be determined from it, though it did not appear to have been very much disturbed over that tunnel. We then proceeded to this drift

(Testimony of Lewis Michael Larson.)

that I mentioned, and I noticed that there had been some retimbering done at the portal of this drift which Mr. Gelston explained had been placed there for the safety of people who would wish to look into the drift; that some of the previous timbers had collapsed. It was noted part of the wash from the creek that I have mentioned over the South Portal apparently would reach that location when the water was high and had a sort of muddy body. On the left-hand side of the portal of the tunnel I noticed the formation that had withstood erosion for no one knows how long, and it gave the impression it was a very hard formation. We went on to the tunnel, Mr. Fontaine and I did, with a view to trying to determine what formation we would find there, and make such other observations as were pertinent, [540] among other things the appearance of the timber, which was thought necessary by the District to hold the tunnel. My recollection now is, although it may not be correct, it was 6 by 6 posts and 6 by 6 caps, and the side and the top were lagged, that means they had lumber outside of the posts and over the caps to prevent the material from falling into it. As we proceeded further into this drift we found that the lagging was becoming less frequent, and toward the deeper part of the drift and the sides my recollection is for a distance of probably 20 or 30 feet there was no lagging. I tried to remove some of the material by hand and found that I could not do so, and we hunted around

(Testimony of Lewis Michael Larson.)

for something to check it, as to what the texture of the material might be. In the forward end of the drift I found a rock that probably was half the size of my hand, which I took out and took with me with a view to observing the texture. Mr. Gelston stated that this tunnel was in line with the future down-grade tunnel at an elevation of approximately 15 feet above sub-grade.

Q. Mr. Larson, I show you a map which has on it "Map Showing Location of Prospect Drift Driven in 1932 at Site of West Portal." Does that map show the location of that drift?

Mr. Wittschen: In order to preserve the record we make the same objection to all of these extraneous matters that are no part of the plans and specifications, as entirely immaterial, irrelevant, and incompetent, and endeavoring to change the contract by parole evidence.

The Court: The same ruling.

Mr. Wittschen: Exception.

A. That is approximately the location as I recall it. It has the relative location with the North Tunnel, the down-grade tunnel that I observed at that time, and about the same distance [541] from the portal, as I recall it.

Mr. Marrin: I would like to offer that in evidence.

The Court: It may be admitted and marked.

(The map was marked "Plaintiff's Exhibit 25.")

[Set forth in the Book of Exhibits at page 260.]

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. Now, Mr. Larson, will you point out to the Court on that map where this prospect drift was with relation to the portal of the tunnel?

A. As I recall the drift—this is the portal of the tunnel, the west portal; this section is about 50 feet in length; that was approximately the end of the drift as I understand it at that time; that is the forward position of the drift, the drift being about 125 feet long. The portion I spoke of, prior to that, where this hard formation lay on this side, and the portion where the timbers had caved in, lay in this position here. Does that cover the ground? [542]

Mr. Marrin: Q. Yes. What subsequently was done with this area in here in which this prospect drift had been driven?

A. That was known as the approach cut, and was later on excavated by Subcontractors McKinley and Crowell.

Q. The prospect drift did not extend into any part of the tunnels as they were subsequently excavated?

A. No. There was no evidence of them there. When the excavation of the approach cut was completed, the prospect drift was entirely obliterated.

Q. What did you next do, Mr. Larson, in connection with—

A. Perhaps I should mention that my impression of the material that would be encountered was

(Testimony of Lewis Michael Larson.)

that it would be very firm. The drift, in other words, was—

Mr. Wittschen: I ask the volunteer statement go out.

The Court: It may go out.

Mr. Marrin: I think, your Honor, this witness is qualified to express opinions concerning those matters.

The Court: Well, that was a voluntary speech.

Mr. Marrin: Q. Would you tell us, Mr. Larson, the impression of the formation which you got from this inspection—

Mr. Wittschen: We object to that as incompetent, irrelevant and immaterial.

The Court: Objection will be overruled and subject to the same motion.

Mr. Wittschen: Exception.

The Court: Subject to a motion to strike over the objection of counsel, it will be received.

Mr. Wittschen: Exception, please.

The Witness: A. My impression is: the formation we would encounter in the tunnel would be a very satisfactory material.

Mr. Marrin: Q. Based on your examination of this drift?

A. Based on my examination of this drift; and there was an [543] apparent wash in the creek above and the general slope of the material over the North Tunnel, indicating that, if there were any deposit on there, it would be of a minor depth, because it would have a flatter slope.

(Testimony of Lewis Michael Larson.)

Q. Will you state what you did, next, in connection with making the estimate?

Mr. Wittschen: To which we will make the same objection.

The Court: The same ruling.

Mr. Wittschen: Exception, please.

The Court: Q. What did you do next?

A. I left this tunnel drift in the company of Mr. Fontaine and Mr. Gelston; and, as we proceeded through the old tunnel, different features of the work were pointed out by Gelston to us. The next trip—Maybe I better carry my trips separately in my estimate, for the time being. The next trip there was made in company with Mr. Fontaine; and, as I recall it, two or probably as much as four days later; for the purpose of further examining formations that we were likely to encounter in the tunnel drift. On this trip, we went over practically the same ground that we had on the previous one, with the exception we did not go into the drift, as our first inspection had been very thorough on that; but, in this trip, I took Mr. Fontaine down—or, rather, in this case, I should say up to what was known as the old Fish Ranch Road. We passed up over the divide and, on going down toward Berkeley, we ran across some relief workers who were widening the road which has now become known as the Claremont Avenue Extension. I had in mind showing Mr. Fontaine exposures of Orindan formation that must lie on that road. We were fortunate in finding these re-

(Testimony of Lewis Michael Larson.)

lief workers far enough advanced on their work that they had made many exposures of Orindan formation, and that gave us an opportunity,—a good opportunity,—to view [544] it in its different component parts. It is made up from river deposits; and, in river deposits, we have sometimes gravel, sometimes mud. That was clearly indicated in this formation. We drove back over the old Tunnel Road, and decided we would call on Dr. Louderback, on this trip; which we did, at his office at the University. We stated to——

Mr. Wittschen: Just a moment. Are you going to another conversation now? I would like you to ask another question.

Mr. Marrin: Yes.

Q. What did Dr. Louderback say to you at the time you called there?

Mr. Wittschen: We object to that as incompetent, irrelevant and immaterial, and calling for hearsay, and not binding on the District in any way, and not explaining plans and specifications.

Mr. Marrin: Will you stipulate Dr. Louderback is the man who made the geological report?

Mr. Wittschen: Yes.

The Court: Well, the report will have to speak for itself.

Mr. Wittschen: It is in evidence.

Mr. Marrin: I want to show, and offer to prove, by this witness, your Honor, that Dr. Louderback told him he had made the report and that, also, he

(Testimony of Lewis Michael Larson.)

referred them to a chert formation on the Claremont Road, which they examined.

Mr. Wittschen: Nowhere in the plans and specifications does it say bidders should go out and consult Dr. Louderback or anybody else on the side.

The Court: The objection will have to be sustained. The report is in, and we will have—and will have to speak for itself.

Mr. Marrin: Very well, your Honor.

Q. What did you then do, leaving out the conversation with Dr. Louderback?

A. I went to look at the chert exposure down on the Fish Ranch Road. After having seen that, in company with Mr. [545] Fontaine, I returned to San Francisco to the Bechtel office. I had one more subsequent visit—We made one more subsequent visit, rather, in which we were accompanied by Mr. Stephen Bechtel, by Mr. Kenneth Bechtel, by Mr. W. A. Bechtel, Junior, by Mr. Henry Kaiser—When I say "we", "we" means Mr. Fontaine and myself. We took them over practically the same ground that I have described, and when we came to the drift, I took Mr. Henry Kaiser into the drift to show him the formation there. My recollection is: there was nobody else besides Mr. Kaiser and myself that went in at this particular time. During this period, when I was not visiting, I was in the process of estimating the tunnel, the first of which is a careful survey to discover everything I can; and the takeoff of material and the quantity that there is to take

(Testimony of Lewis Michael Larson.)

into consideration. In the taking off of material, it is necessary to get prices on the materials that have to be purchased. As this takeoff was completed, I passed that information to Mr. Orselli. He was one of the members of the W. A. Bechtel Company, who was to assist me in checking extensions on my figures and my totals, and to get me the information that was necessary for me to complete the estimate of getting material price quotations. When the quantities were pretty well taken off, I began on the real estimate itself, and, as the worksheets were completed, I passed them to Mr. Fontaine, if he were present. Mr. Fontaine had many duties, and sometimes he was not there when I had a worksheet completed; in which event, I passed the worksheet to Mr. Orselli, and Mr. Fontaine would have the opportunity of observing it later. Mr. Orselli, in turn, passed the information to Mr. Shaw, who was then acting as chief engineer for W. A. Bechtel Company. That was the information I had. He brought it up into book form, in the way the W. A. Bechtel Company wished it placed.

Q. Mr. Larson, I show you Plaintiff's Exhibit No. 22, which is [546] entitled "Geological Report," and I will ask you to look at that and state whether, in connection with making the estimate, you examined that report, or any part thereof.

Mr. Wittschen: May I have the answer "Yes" or "No"?

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. Will you say "Yes" or "No" to that? A. Yes.

Q. Which part?

A. The part beginning here on page 13.

Q. And running through to what page?

A. Running through and including page number 18.

Q. I also show you, Mr. Larson, Plaintiff's Exhibit 23, which is a profile, and ask you, in connection with the making of the estimate, whether you saw that profile.

A. I did. I had possession of both that and that portion of the geological report I refer to here.

Q. When did you first see the part of the geological report which you have stated you had before you, in making this estimate?

A. My recollection is that it was in the early part of——oh, before the 10th of March; it was March, because I did not join with them until February; so it was in the early part of March.

Q. Of what year? A. 1934.

Q. Did you have the profile before you?

A. Yes; I had this profile or one similar to it, yes. It was handed to me by Mr. Calhoun.

Q. Was that part of the geological report, which you have identified as having been before you, handed to you by Mr. Calhoun? A. It was.

Q. Did you read that part of the geological report which you had? A. Very carefully.

(Testimony of Lewis Michael Larson.)

Q. Did you draw any conclusions from that, as to the character of the ground through which the tunneling would be constructed?

Mr. Wittschen: I object to that as incompetent, irrelevant and immaterial, and not binding on the defendant in this case, and expressing something not considered by the contract between the parties.

The Court: Objection overruled. I will allow it to come in [547] over your motion to strike and over your objection.

Mr. Wittschen: Exception, please.

The Witness: A. I formed very definite conclusions.

Mr. Marrin: Q. Will you state what they were?

Mr. Wittschen: Same objection.

The Court: Same ruling.

Mr. Wittschen: Exception.

The Witness: A. My understanding of the report was that, in the major portion of both tunnels the ground would be self-sustaining. To me, "self-sustaining" means no need for artificial support. I noted, in the western portion of the tunnel, over the western portal, that we might find some wash, and we might find water that would be a sort of menace until we got under the main portion of the ground; and I noted that the slope of the hill indicated in the sketch would throw the tunnel under the undisturbed portion of the ground pretty quickly. I noted in the report, as I understood it, that not much trouble might be expected from this material.

(Testimony of Lewis Michael Larson.)

Those were my conclusions from having carefully studied the report, and the sketch that accompanied the report. On the basis of this, I proceeded to lay out the method of driving; that would be the excavation, in the western portal section——

Mr. Marrin: You are getting to another subject.

The Court: We will take a recess.

(After Recess)

Mr. Marrin: Q. I draw your attention to a photograph, which is on the easel. Will you explain what that represents?

A. That represents the chert exposure to which I made reference. There have been some changes. This was in a sort of arched condition, as I saw it; I could not tell; but I suppose it is——

Mr. Wittschen: We canot hear the witness. [548]

Mr. Marrin: Q. That was the chert exposure which you saw?

A. That was the chert exposure that I saw, and the one to which I took Mr. Fontaine.

Mr. Marrin: We offer that in evidence.

Mr. Wittschen: We object to that as incompetent, irrelevant and immaterial, and not being in any way binding on the defendant.

The Court: I will allow it under the same ruling.

Mr. Wittschen: Note an exception, please.

(The document was marked "Plaintiff's Exhibit No. 26.")

Mr. Marrin: Q. Mr. Larson, I draw your attention to Plaintiff's Exhibit 3, specifications for

(Testimony of Lewis Michael Larson.)

construction of project. I think you have already testified that you studied those specifications in connection with the making of your estimate?

A. I did.

Q. Did you form any opinion of the condition of the ground which would be encountered in driving the tunnel, from your study of those specifications?

Mr. Wittschen: We object to that as incompetent, irrelevant and immaterial, and calling for his conclusion on a matter that could not possibly bind this defendant.

The Court: Let it come in, subject to a motion to strike and over your objection.

Mr. Wittschen: Exception.

The Witness: A. Yes, I did.

Mr. Marrin: Q. What?

A. The impression that I got from the specifications was——

Mr. Wittschen: Just a moment. I want to make the same objection, but add to it, further: the specifications speak for themselves and are to be construed by the Court, and not subject matter calling for the opinion and conclusion of this witness.

The Court: Will you make reference to the part of the specifications you base your judgment or opinion upon? [549]

Mr. Marrin: I am going to ask him that at this time.

The Court: Ask it directly.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: I am asking for the opinion, your Honor, that he formed as to the ground condition there of the tunnel.

The Court: Based on what?

Mr. Marrin: Based partly on these specifications.

Mr. Wittschen: What particular part do you claim to be misleading in any way?

Mr. Marrin: I was going to follow that by asking him that.

The Court: That was the reason I suggested it. Proceed.

Mr. Wittschen: Exception.

Mr. Marrin: I am going to ask him to draw our attention to the specific provision upon which he relied in forming his conclusion.

Q. Will you state, first, the opinion you formed as to the ground conditions, from studying those specifications?

Mr. Wittschen: I object to that as incompetent, irrelevant and immaterial, too general, not binding on the defendant, and asking him to interpret the specifications, which should be interpreted by the Court.

The Court: He may answer "Yes" or "No," if that is possible, and then follow it up by indicating what portions of the specifications he based it on. That is my suggestion. I will allow it, subject to a motion to strike and over your objection.

Mr. Wittschen: Exception.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. Will you answer the question?

A. I was influenced by the clauses in the specifications.

Mr. Wittschen: I move the answer go out. We are not interested in whether he was influenced. They are charging us here with having something misleading in the specifications. I think he ought [550] to point to something that misled him; and it is for your Honor to decide whether that was misleading.

The Court: I have allowed the question, preliminarily, under the issue presented of what will follow—the purpose of his testimony; if the purpose is what counsel has indicated.

Mr. Marrin: The purpose of this testimony is to show, first, that, from certain provisions in the specifications, self-supporting ground is indicated; the provision respecting timbering, and other provisions in the specifications; secondly, showing that that was a misrepresentation of the conditions, first —and, secondly, it goes to the issue of mistake.

The Court: Well, then, we will have to go to the provisions of the specifications to ascertain in what manner you were misled, if at all.

Mr. Wittschen: I would respectfully like to urge that I think this goes to a very important portion of the case; and I don't think those specifications are open to the interpretation of employees of the plaintiff to say that they were misled by them, unless your Honor concludes, from an interpretation, that they are misleading. You cannot draw infer-

(Testimony of Lewis Michael Larson.)

ences from specifications, and say, from those, that there was something in there that was misleading or deceptive, at least not in a general way, until he points out specifically the place he relies on. Then, I say, when that happens, it is for your Honor to interpret that language and not for the witness.

The Court: It might be that; that is the reason I suggested it.

Mr. Marrin: I will withdraw the question.

Q. Mr. Larson, will you point out the provisions in the specifications upon which you placed reliance in determining the ground conditions through which the tunnel would be constructed? [551]

Mr. Wittschen: I object to that as incompetent, irrelevant and immaterial, too general, calling for an opinion and conclusion of the witness on an immaterial point, and calling for a conclusion that is not binding on the defendant.

The Court: I will allow it.

Mr. Wittschen: Exception.

Mr. Marrin: Q. Will you proceed?

A. May I read it?

Q. You may call our attention to the specific provision, pointing out the page and the specification number, and read it.

A. May I state why I drew the conclusion?

The Court: Q. First indicate the specification.

Mr. Tinning: Q. And, Mr. Larson, will you give us the page and the section number?

(Testimony of Lewis Michael Larson.)

A. It is on page 59, in the section termed "Overbreak." I will read:

"Where timber is employed for tunnel timbering it shall be removed before any concrete is placed, and any spaces outside the neat lines of the concrete structure caused by such removal shall be filled with concrete as above provided. In the event that it is found impracticable, in the opinion of the District Engineer, to remove timbering or portions thereof, such timbering may be allowed to remain permanently in place, but in no case shall such timber so remaining be allowed to project into the neat lines of the concrete structure. Where timber is permitted to remain, all spaces outside of the neat lines of the concrete structure shall be filled with concrete mixed in the same proportions and placed at the same time as the concrete in the neat structure."

The Court: Q. That is to say the engineer was to determine that?

A. Yes, the engineer is to determine it.

Q. He had the final word, under the plans and specifications?

A. Yes; that is correct. [552]

On page No. 60, the paragraph at the right hand side of that page, under Section 32. I might drop back and repeat the whole clause there beginning with "Timber."

Mr. Tinning: I have a different paper if you indicate the subject-matter that will help a lot, Section 32 (e), is it not?

(Testimony of Lewis Michael Larson.)

A. Section (e), yes. The title is "Timbering". "The term 'Timbering' as used herein shall include all wooden pieces or structures used to support the earth or rock adjacent to any excavation. The Contractor shall furnish, put in place, construct and maintain all timbering necessary to support the sides and top of the excavations, preliminary to the placing of the concrete lining. The timbering shall be so constructed as to prevent any movement or caving which might in any way injure the proposed structures or endanger any person. Wherever, in the opinion of the District Engineer, sufficient or proper timbering has not been provided, the Contractor shall furnish additional timbering; but neither compliance with the District Engineer's instructions nor failure of the District Engineer to give such instructions shall relieve or release the Contractor from his responsibility for the sufficiency of the timbering.

"It is the general intent of these specifications that all timbering shall be removed from the excavation before concrete is placed. Should conditions arise where, in the opinion of the District Engineer, it is impracticable to remove certain timbers or structures, such timbering, upon the written consent of the District Engineer, may be permitted to remain, subject, however, to the provisions herein contained in respect to clearances outside of the concrete lining. Timbers allowed to remain in place shall in no case project into the neat lines of the

(Testimony of Lewis Michael Larson.)

concrete structure, and, in the event that it is apparent, during the process of excavation and timbering, that the safety of the [553] excavation will require timbering to remain in place, the Contractor shall enlarge the excavated section to the extent necessary to set the timbers outside of future concrete lines; timbers found to project within the concrete lines shall be removed and reset before concreting. Permission to allow timbers to remain will not be granted for any other reason than to secure the safety of the structure.

"Where timber is allowed to remain it shall be keyed or wedged firmly against the adjacent rock or earth, and shall be securely fastened, spiked or bolted so that no movement, shifting or settlement shall occur. All joints shall have full and firm bearing, timber to timber, without shimming or blocking. All timber, whether permanent or temporary, shall be sound Douglas fir and no second-hand material shall be used, provided, however, that material already used in tunnel construction and removed in good condition, may, with the approval of the District Engineer, be reused where conditions permit.

"Timbering shall be placed in such a manner as to be readily removed, without endangering the safety of the excavation or causing weakness or excessive stresses in adjacent timber sets or concrete structures, and any damage which may occur shall be remedied by the Contractor at his own expense, including the removal and replacement of any con-

(Testimony of Lewis Michael Larson.)

crete which has, in the judgment of the District Engineer, been damaged or subjected to excessive loads on account of such operations.

"Lagging behind timber sets shall be restricted to the least extent consistent with safety, and, if, in any case, permitted by the District Engineer to remain permanently in place, shall be so spaced as to permit the unrestricted flow of concrete through the lagging to fill any spaces between the lagging and the excavated surfaces." [554]

Mr. Wittschen: Would you mind reading the one as to Structural Steel Supports?

Mr. Marrin: I asked the witness to read those sections of the specifications upon which he based his opinion as to the nature of the ground.

The Court: The thought being not to limit him to any section or portion of the section?

Mr. Marrin: I did not want to limit him to any part upon which he based his opinion.

Mr. Wittschen: The next paragraph is Steel, and it is pertinent.

The Court: Q. Did you take that into account?

A. The steel?

Q. Yes.

A. I took it into account only in this way, that it was optional to use steel instead of timber, where the conditions demanded that one or the other might be used; it was optional. If I may be permitted to state——

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: Just a moment, you have answered the question.

Mr. Marrin: I think so. Do not volunteer until I ask a question. Do you want the section read?

Mr. Wittschen: Yes.

Mr. Marrin: Will you read that?

A. It is entitled "Structural Steel Supports," Section (f): "Structural steel shapes may be used to support the sides and tops of the excavation, either entirely or in connection with timbering. Where structural steel ribs are used the same may be allowed to remain in place, provided that they do not project into the concrete more than four inches (4") beyond the neat lines of the concrete structure. The manner of framing, supporting and removal shall be such as to fully support the excavation while in place, and permit removal without endangering other parts of the structure. [555] All timbering used in connection therewith shall conform to the requirements set forth under 'Timbering,' including the removal before concrete is placed. Where steel is permitted to remain in place, all spaces between the steel and the adjacent earth or rock shall be thoroughly filed with concrete so as to provide firm and uniform bearing and the steel ribs and liners shall be so constructed and erected that no settlement or movement will occur. Liner plates allowed to remain in place shall not project into the neat concrete structure."

(Testimony of Lewis Michael Larson.)

Q. You might as well read the rest of it on timber and then we will have it complete.

A. "(g) Types of Tunnel Section.—Two typical tunnel sections are shown on the plans. The District Engineer shall determine which section shall be used in any specific location in order to meet varying conditions which may be encountered. In general, it is expected that the Type 'A' section will be used throughout the major length of the tunnels, but if conditions arise which, in the judgment of the District Engineer, require the use of Type 'B' section, the Contractor shall make such modifications in construction as may be necessary.

"No extra payment will be allowed on account of such change, but the unit prices bid for the various units or types of work shall include full compensation for such work, labor, material or equipment as may be necessary."

Q. What opinion did you form as to the condition of the ground from these provisions of the specifications which you just read?

Mr. Wittschen: Objected to as immaterial, irrelevant, and incompetent, and asking the witness to construe the contract, and invading the province of the Court.

The Court: I will allow it subject to the same ruling.

Mr. Wittschen: Note an exception. [556]

A. In order to make any estimate you have got to draw a conclusion on every part——

(Testimony of Lewis Michael Larson.)

Q. Just answer the question. Will you read the question?

(Question repeated by the reporter.)

A. That in the main the timbering would be required to be removed, which implied a self-sustaining rock.

Mr. Wittschen: I ask that the last portion of the answer go out.

The Court: The "implied' may go out. Develop the facts, whatever they may be.

Mr. Marrin: Q. From your experience in tunnel construction, could you state whether or not timbering could be removed where the ground is not self-supporting?

Mr. Wittschen: Objected to as asking for the opinion and conclusion of the witness, and endeavoring to construe the contract, and entirely immaterial.

Mr. Marrin: I think that he has the qualifications to answer as an expert. He has had long experience in tunnel work.

The Court: That may be true, but tunnels are driven under different conditions. We have plans and specifications here. His answer will have to be based on conditions here.

Mr. Wittschen: Might I call attention to the fact that the plans provide if the District Engineer insists it all will remain in.

Mr. Marrin: No, the plans do not quite provide that. They require the timbering in unless the Dis-

(Testimony of Lewis Michael Larson.)

trict Engineer, by order, requires them to be taken out, or permits them to remain in.

Mr. Wittschen: He can permit them to remain in.

The Court: As I gathered from the statement yesterday, the engineer had the final say as to whether they would remain in or be removed. In fact, they had to have his consent before removal.

[557]

Mr. Wittschen: No, they had to have his consent for them to remain, but if he wished to he could leave them all in.

Mr. Marrin: What I will offer to prove by this witness, so that it may be clear to your Honor, is this, that he was furnished with certain specifications and geological reports, and he made an examination of the ground, and conclusions which he arrived at in planning the method of procedure, and the cost of constructing these tunnels. Now, your Honor may or may not feel that he was justified in relying upon these things, but we think we are entitled to show this certainly on the issue of mistake, and the fact as to what the conditions were. We have to show that not only did the district furnish these things and make these representations, but that the plaintiff relied on them.

Mr. Wittschen: In that connection, in the first place, the district could not possibly be bound by what somebody interpreted in a set of plans. In the first place, it is for your Honor to determine

(Testimony of Lewis Michael Larson.)

whether or not they were misled, and in these plans and specifications the District could have had every stick of timber removed or every stick left in, depending upon how the Engineer of the District felt. Furthermore, on this issue of mutual mistake, if that is what counsel is trying to show, I say he is completely out on that, because the cases hold that mutual mistake must be pleaded, and under the form of common count you may show fraud if you like, you may show under a common count, particularly where the answer is in, any reply where a certain defense is set up; in other words, where we set up that the plans and specifications show so and so, they might come in and show that their bid was procured through fraud, but where they want to set a contract aside on the ground of a mutual mistake, there was a case decided within the last two months by the Supreme Court of this State, and I will just read one excerpt from it. There are other [558] cases on it.

"Where a cause of action if founded upon an alleged mutual mistake it is necessary that the complaint contain a proper allegation thereof."

Now, there is no element of mutual mistake here. What counsel started in to prove was that he was misled, or his client was misled by these specifications. Now, I say these specifications that require timbering in great detail, and this does not go to the weight of the evidence, it goes directly to the point, could not possibly mislead anybody that the

(Testimony of Lewis Michael Larson.)

ground was self-supporting, and where the District Engineer, under the evidence that is now in before your Honor, might order all timber out, or might permit it to remain, then I say it is for your Honor to determine whether or not these provisions are misleading, and not to have the gentleman who is on the stand say they misled me—whether they misled him or not is immaterial. The question is whether they mislead.

Mr. Marrin: We say that this witness was misled. He was the man that made the estimate.

The Court: Assuming that your position is correct, and his conclusion is it was misleading, I must finally determine whether or not he was misled, that is entirely for the Court—he was misled by what?

Mr. Wittschen: He said by this language, I assume was the question. But even if he was misled, that is not the criterion, but is the language misleading to a reasonable person?

The Court: Since I have indicated my method of procedure, I am going to allow them to make a record on that, and after a full cross-examination I will be in a position to rule. Proceed.

Mr. Wittschen: Note an exception.

Mr. Marrin: Read the question. [559]

(Question repeated by the reporter.)

The Court: Do you understand the question?

A. I believe I do, your Honor. It cannot be removed with safety unless the ground is self-

(Testimony of Lewis Michael Larson.)

supporting. It is one of degree. In some cases it would cause an immediate filling in, in other cases it might sustain itself for a very limited time, but it is an unwise risk to take.

Mr. Wittschen: Just a moment, I am going to move that the answer go out as being entirely immaterial, not entirely responsive to the question, and not proving any issue.

The Court: The objection will be overruled.

Mr. Wittschen: Exception.

Mr. Marrin: Q. Were there any other provisions in these specifications, Mr. Larson, upon which you relied in determining the method of procedure which you followed in constructing these tunnels?

Mr. Wittschen: The same objection to that as to a similar previous question, and the further objection that it is entirely immaterial what procedure he adopted. His principal agreed to build the tunnel, and to finish it, and the procedure that they followed was up to them.

The Court: I will allow him to answer.

Mr. Wittschen: Exception.

A. Will you kindly read that question again?

The Court: Read the question.

(Question repeated by the reporter.)

A. May I couple that, your Honor, with a conclusion?

The Court: You will have to answer the question.

Mr. Marrin: Q. Were there any other provisions of the specifications?

(Testimony of Lewis Michael Larson.)

A. Not that I recall at this time.

Q. Very well, that answers it. Mr. Larson, did you consider the [560] fact that the specifications provided for a construction of 200 feet of Type B and 5600 of Type A?

Mr. Wittschen: Objected to as asking the witness to construe the specifications which are for the Court. That provision was just read, and it reserves the right of the District Engineer to have it all Class B if he so desired.

The Court: Read the question.

(Question repeated by the reporter.)

Mr. Wittschen: My objection is that there is nothing in the specifications to warrant his conclusion. He just read into the record that the District Engineer could order it all Type A or all Type B.

The Court: He may answer the question.

Mr. Wittschen: Exception.

The Court: Do you understand the question?

A. I understand the question, yes. My conclusion was that the thought in the Engineer's mind would be that there would be a very limited amount of Type B.

Mr. Wittschen: Is he to interpret the Engineer's mind?

The Court: You cannot interpret the Engineer's mind. You would have some capacity if you could do that.

Mr. Wittschen: The answer may go out, I take it?

The Court: It may go out.

(Testimony of Lewis Michael Larson.)

A. I will have to admit that it did help confirm the conclusion in my mind that there would be a limited amount.

Mr. Wittschen: I ask that the volunteer statement go out.

The Court: It may go out. Read the question.

(Question repeated by the reporter.)

Mr. Wittschen: That is assuming something not in evidence, it did not so contemplate.

The Court: I am going to allow the witness to answer it if he can. [561]

Mr. Wittschen: Exception.

A. It did influence me in believing that there would be a limited amount, if that answers the intent of the question.

The Court: What do you mean by that?

A. A limited amount of the Type B which is the heavier type.

Q. What do you base that on?

A. I base it not only on the specifications, on the geological report—I had to combine all of those things to form the conclusion.

The Court: I think the question and answer may go out. I have tried to clear the matter up and cannot do so. You may reframe the question.

Mr. Marrin: I will withdraw the question.

The Court: We will take an adjournment now until tomorrow morning at ten o'clock.

(An adjournment was here taken until tomorrow, Thursday, April 14, 1938, at ten o'clock a. m.) [562]

Thursday, April 14, 1938;
10:00 O'Clock A. M.

Mr. Wittschen: Before the witness is called, may I have one technical matter corrected and have an understanding with the other side? I hurriedly read through a small portion of the record of yesterday's proceedings, and I know it is inevitable that transcribing and typographical errors will take place, but I have noticed several, and I think this stipulation is agreeable to the other side: that we may go through the record at our leisure, make certain corrections that we agree upon, and notify the Court; and, in the event we fail to agree, the Court can straighten out any errors.

On page 111, there is one matter that, from my viewpoint, is serious: I think your Honor will recall that I objected most vigorously to the introduction of the geological report, and your Honor recollects that I took an exception. No exception has been noted; and I would like page 111, at the place that that geological report was admitted in evidence, to note that the defendant took an exception to the Court's ruling.

The Court: The record will so show.

Mr. Wittschen: Would your Honor so order?

The Court: Yes.

Mr. Wittschen: There will be others. I have not had a chance to go further.

Mr. Marrin: If the Court please, preliminarily, the plaintiff has alleged that it was the holder of a contractor's license issued by the Contractors' State License Bureau of this state, at the time the contract was entered into and during all the time that it was ours; and I understand that the attorneys for the defendant are willing to stipulate to that.

Mr. Tinning: Yes, we will stipulate that you were duly licensed at all times during this contract.

[563]

Mr. Marrin: Yes. There is one other matter, your Honor, which I should like to refer to.

Mr. Tinning: May I say the reason for the stipulation is that the original license was lost in moving around, and that is why it is not produced?

Mr. Marrin: That is the reason. They were posted in the job office and became lost. In looking over the transcript of yesterday, I see the following statement which was made by the Court to the witness; and the witness's reply to the question of the Court is this—it is in connection with the discussion on timbering specifications:

"Q. That is to say the engineer was to determine that?

A. Yes, the engineer is to determine that.

Q. He had the final word, under the plans and specifications? A. Yes; that is correct."

At this time, we want to point out to your Honor that we do not agree with any statement that the

engineer had any right to interpret or change the contract, or that he had any arbitrary power under the contract, while the contract——

The Court (Interrupting): Yes; the Court did not intend to infer that he did.

Mr. Marrin: Well, I just wanted our position to be clear.

The Court: The only thing I was referring to—the thing in my mind was that it was stated by counsel on either one side or the other that he was, and the plans and specifications so indicated—the plans, rather. That was all I had in mind.

Mr. Wittschen: The specifications indicate he could determine whether or not timbering would be left in or taken out.

Mr. Marrin: There will be a great deal of testimony, later on, with respect to the power of the engineer, at which time we will [564] want to argue the matter; and I simply want it understood we don't agree that that is the situation, at this time, so you would not be misled.

Mr. Wittschen: Well, Mr. Marrin, I think each of us is apprised as to how far the engineer may go; but the Court's question is not directed to determining matters of policy by the engineer, but merely, on that item of timbering, that there was a clause in there that gave him discretion as to whether the timber could remain in or be taken out; and the clause will have to speak for itself.

Mr. Marrin: Yes; that is correct. Also, at page 172 of the transcript, I at first made a misstatement to this effect:

"No, the plans do not quite provide that. They require the timbering in unless the District Engineer, by order, requires them to be taken out, or permits them to remain in."

I corrected that statement, because it is not true. The plans provide, as Mr. Wittschen stated, that the timbering shall be removed unless the engineer permits them to remain in. The reporter did not get that correction. I simply want to clear that up.

Mr. Wittschen: I think probably I have not had the opportunity, as you have had, to read all of the transcript; and I have suggested, earlier, if there are any misstatements, they can be taken care of.

The Court: I think I am aware of the position of both sides. I don't think there will be any difficulty about agreeing on anything—wherever there may be a dispute in relation to it, if there is, you will have an opportunity to call witnesses to straighten it out, if there is any question about it.

Mr. Wittschen: We shall not be technical about it. [565]

LEWIS MICHAEL LARSON,

recalled for the *defendant;*

Direct Examination (Continued)

Mr. Marrin: Q. Mr. Larson, did you complete an estimate on the cost of constructing the tunnels which are described in the contract between the plaintiff and the defendant, which has been introduced in evidence here? A. Yes, I did.

Q. Before completing that estimate, did you form an opinion as to the character of the ground through which those tunnels would be constructed?

A. I did.

Q. What was that opinion?

Mr. Wittschen: Objected to as incompetent, irrelevant and immaterial, calling for an opinion and conclusion of the witness upon a matter that is not binding upon the defendant, and on the further ground that the defendant is not bound by the opinion or conclusion of any witness, but the contract and specifications must speak for themselves.

Mr. Marrin: If the Court please, there was a little confusion at the end of the day yesterday. We are offering this testimony to prove, not what the plans and specifications mean, or to determine them, but to prove a fact. That fact is the reliance of this plaintiff upon those representations. Whether or not the plaintiff was justified in placing that faith and reliance upon them will, of course, in the end be for the Court; but we want to prove, through this witness, and offer to prove through him, the fact of such reliance.

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: The District, the defendant in this case, is not bound by the opinion and conclusion of any witness.

Mr. Marrin: That is not the point, your Honor, —as to whether they are bound. There is no attempt being made here to change the specifications or the contract. The only purpose of this testimony [566] is to show the reliance upon it,—which is a matter of fact; and which we feel we have a right to prove.

Mr. Wittschen: I would like to add to my objection: that it is a self-serving conclusion.

The Court: I will allow it, subject to the same ruling: subject to a motion to strike and over the objection of counsel.

Mr. Wittschen: Will you note an exception, please?

The Court: Note an exception.

Mr. Marrin: Will you read the question, please, Mr. Reporter?

(Pending question read by the reporter.)

The Witness: A. The opinion was that the major portion of both tunnels would be in self-supporting ground.

Mr. Marrin: Q. Upon what was that opinion based?

Mr. Wittschen: I make the same objection to that question as was made to the preceding question, and on all the grounds.

The Court: Same ruling.

Mr. Wittschen: Note an exception.

(Testimony of Lewis Michael Larson.)

The Witness: A. It was based on a study of the geological report, on a study of the specifications and of the plans, and upon an inspection of the physical features, by myself.

Mr. Marrin: Q. What provision of the specifications?

Mr. Wittschen: We object to that on all the grounds previously stated.

The Court: Same ruling.

Mr. Wittschen: Note an exception.

The Witness: A. On the provision of the specifications relating, to my understanding, that the timbering would have to be removed unless permission of the engineer was granted to allow it to remain in.

Mr. Marrin: Q. And what provision of the plans?

Mr. Wittschen: Same objection on all grounds stated. [567]

The Court: Same ruling.

Mr. Wittschen: Note an exception.

The Witness: A. That the plans indicate a wall, that we term a "batter wall," that led me to conclude that the ground would be offering no inordinate pressure to the side walls; that there was no plan of timbering offered, which is customary, I think, without any exception, in all the tunnels that I have estimated. When timber is to be left in, it is customary to offer a plan showing how the timbers should be left in.

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: I ask that the opinion and conclusion of the witness, as to what is generally done in all tunnels, be stricken.

The Court: What is generally done in all tunnels——

Mr. Marrin: I think, your Honor, that should remain in; the witness is qualified as an expert; he is entitled to rely upon his previous experience, showing what is usually present where the timbering is to be left in the tunnel.

Mr. Wittschen: It was a voluntary statement.

The Court: After all, it will finally be determined, I take it, by the Court, after we have a complete picture. I will allow the record to stand, keeping in mind, as I have stated, it is going in, subject to a motion to strike, over the objection of counsel.

Mr. Wittschen: Exception.

Mr. Marrin: Q. Before completing your estimate, Mr. Larson, did you decide the method of procedure that you would follow, in excavating these tunnels? A. I did.

Q. Will you describe that method?

A. I had planned to go in, on each of the two tunnels, from the westerly side,—westerly end,—with 11 drifts for a distance of 40 feet; on the easterly portals, at each end, with 11 drifts in for a distance of 20 feet.

Mr. Tinning: Q. We cannot hear you, Mr. Larson. I think you started by saying there were 11 drifts?

(Testimony of Lewis Michael Larson.)

A. 11 drifts were planned [568] for the west end, to penetrate the tunnels for a distance of 40 feet; that would apply to each of the two west portals. The east portals, it was planned to drive 11 drifts to complete the outer excavation for a distance of 20 feet,—that is, the east portals, with these drifts. They are perimeter drifts. They are drifts that are driven in the outer excavated section; and timber to be put in,—planned to go in for 720 feet, by wall plate drifts. Should I explain the wall plate, or is it not a proper time?

Mr. Marrin: Q. I will ask you to describe that shortly.

A. And for the remainder of the distance, I had planned to use what I shall term the full face method,—putting up temporary timbers, removing them when the concrete was placed.

Q. From which end were the wall plate drifts; from which portals——

A. From the west end, adjoining the full drift sections.

Q. From which end did you plan to construct all of these drifts?

A. From the west end, with the exception of the 20 feet in the east end.

Q. I show you here a drawing marked "Excavation and Timbering." Will you state what that is?

A. That drawing shows three methods that I had planned to pursue in the driving of the tunnel; and it shows, at the ends,—east and west ends,—where it was contemplated to leave the timbers in.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: I offer that in evidence.

(The drawing was marked "Plaintiff's Exhibit No. 27.")

[Set forth in the Book of Exhibits at page 261.]

Mr. Marrin: Q. Mr. Larson, will you just explain briefly to the Court the methods that you proposed to use and where they occur in the tunnel?

A. Yes.

Mr. Tinning: Yesterday, when Mr. Larson was testifying to some diagram, he was saying "This"; and I am sure the record won't show it.

Mr. Marrin: Yes; we will have to clear that up. We have four [569] wooden models, your Honor, to illustrate this witness's testimony, and I would like to get them.

The Court: We will take a few minutes' recess while you are placing them.

(Short Recess) [570]

Mr. Marrin: I would like to have marked for identification at this time, if your Honor please, this wooden model which I will mark with a "1".

(The model was marked "Plaintiff's Exhibit 28 for identification.")

I would like to offer for identification the wooden model which I will mark with a "2".

(The model was marked "Plaintiff's Exhibit 29 for identification.")

I would like to have marked this model No. 3 as Plaintiff's Exhibit 30 for identification.

(Testimony of Lewis Michael Larson.)

(The model was marked "Plaintiff's Exhibit 30 for identification.")

I would like to have the model which is marked No. 4 marked Plaintiff's Exhibit 31 for identification.

(The model was marked "Plaintiff's Exhibit 31 for identification.")

These models, if your Honor please, were prepared for the purpose of demonstrating the methods used in the actual tunnel construction, with the exception of this model which has been marked "Plaintiff's Exhibit 29 for identification," which was made to demonstrate the method of full face excavation which was contemplated but which was not used, and they are as accurate representations of the method used as we could produce from our records.

Now, for that purpose, if there is no objection by defendant's counsel, to their being placed in evidence, I would like to offer them in evidence for that purpose.

Mr. Tinning: My understanding, Mr. Marrin, is that they are accurate representations of methods that you proposed to use [571] or did use, and drawn to some scale in proportion to the plans of the tunnel, but that the actual timbers that are set in these models are simply demonstrative, and they do not purport to represent particular locations of any timbers that were actually installed in the tunnel?

Mr. Marrin: That is correct.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: We have no objection, on that understanding, to your introducing them as exhibits to demonstrate the method, but not for the purpose of determining the dimensions or actual positions of particular timbers that might have been installed in the tunnel.

Mr. Marrin: We will offer them in evidence then as Plaintiff's Exhibits 28, 29, 30 and 31.

(The models were marked, respectively, Plaintiff's Exhibits 28, 29, 30, and 31, in evidence.)

Q. Mr. Larson, referring to Plaintiff's Exhibit 27, which is a chart, and to plaintiff's Exhibit 28, and to Plaintiff's Exhibit 29, will you explain to the Court from those the methods of excavation which you planned on using at the time you made your estimate?

A. Yes. This illustrates the drift method referred to.

Q. When you say "this" you are referring to the section AA on Exhibit 27?

A. This illustrates two lower drifts; they were to be driven in first to a certain distance, which I will elucidate more fully on the other model, to be followed then by the two drifts immediately above, and then two drifts above them, and continuing so until we reached the top drift, which completes the outer circle.

Q. Now, pointing to the plan of the tunnels, will you point out where it was contemplated by you that that method specified in Section AA would be used?

(Testimony of Lewis Michael Larson.)

A. 40 feet on this end of the two tunnels.

Mr. Tinning: Does that indicate the west end, for the purpose [572] of the record?

Mr. Marrin: Q. Does that indicate the west end?

A. This indicates the west end and this indicates the east end, 20 feet on the east end, or the upgrade end; from that position of 40 feet which is not definitely illustrated here, carried on to the top of these darker lines showing a contemplated wall plate section, which is this section here.

Q. In referring to the dark lines the witness is referring to the west end of the plan as shown on Plaintiff's Exhibit 27, and you are referring now to Section BB as shown in that exhibit?

A. Yes. In this it was planned to excavate this drift marked No. 1 on each side first, placing what we term a wall plate in there, which is a heavy stick of timber, from which we would construct as we progressively advanced with our excavation the arch section of the timbers to support the ground above. When this was excavated to a certain depth, probably 20 or 40 feet, and other wall plates are about ready to be placed in there, or, rather, I should say when it was advanced to the point where it was safe for men to work in this section marked 2-2, on each side, a crew was to be put in there and the muck from these drifts was to be dropped down into this lower drift; the reason for mentioning the safety of the men working below was this, as these two were

(Testimony of Lewis Michael Larson.)

advanced in about the same stage of progress, this final drift, known as the top drift, would be the one that would be excavated, and the permanent timbers put in, forming the arch and protecting the crews below. The next move was to make—these operations were to be carried on forward progressively in the steps I illustrated. We then go along and shoot the core—this section in here is known as the core, not enumerated by numerals 1, 2, 3, and as that core was being excavated this wall plate that I mentioned in the wall plate drift would overhang the excavation and posts would be progressively [573] placed under the overhung portion of the wall plate to give support to the timbers above as the earth was removed.

Q. How was that earth removed?

A. That earth was planned to be removed with power equipment, either air or electric shovels. Dropping back again to AA, it was planned to remove this core too by a power shovel, and after having completed the circle—I might mention that this was planned to be in advance of the concrete lining. This one marked CC——

Q. The witness is referring to Exhibit 27.

A. Of Exhibit 27—it was planned from the point where these wall plate drifts would end to carry that method through the entire length of the tunnel; that is what is termed the "Full face method."

(Testimony of Lewis Michael Larson.)

Q. The wall plating would end at the place indicated in Exhibit 27 where the cross hatching or shaded portion of the tunnel stops?

A. Correct, and where the unshaded portions are illustrated there the full face method was contemplated. In the full face method it was contemplated to put temporary timbers in to protect the workmen from falling rock, from dropping onto the workmen, but later on to be removed in advance of the concrete lining. The advantage in that lies that this section could have been made smaller, because the timber being removed, the timber could have been removed on the inside of the section to be lined by concrete, and being removed in advance it would reduce the section of concrete lining that we would have to put in there by at least one foot per tunnel foot, that is, one foot in width over the circle, a big circle of the tunnel from sub-grade to sub-grade, for the full length where this method was used.

Q. Now, referring to Section AA as shown on the plan, did you plan to leave the timber in that section?

A. We planned to leave the timber in this section known as Section AA, and in BB section. [574]

Q. You did not plan to leave the timber in the section CC? A. Only the lagging.

Q. Now, Mr. Larson, referring to Plaintiff's Exhibit No. 28, will you point out to the Court just how the excavation was carried on in these drifts,

(Testimony of Lewis Michael Larson.)

and as you go through will you explain what a wall plate is, and what segments are and what spiling and lagging is, so that the Court will understand from now on what those terms mean?

A. Yes. This is what we term the lower drift. If the ground conditions permit we make an excavation in a specified distance, which in my estimate I thought would be five feet in the spacing of those timbers, then the posts are put up. These are the posts and this is the cap put over the posts, and on the top of that we would put what we term lagging. Lagging is illustrated on this side. It is timber laid from set to set, or possibly covering two sets, depending on the ground conditions, and the lagging meets each other on the end; there is no over-lap; I mention that because there is a difference in that and spiling. If ground conditions are bad, instead of making your excavation first and putting your lagging in, you have to shove your spiling, either by what we term the method of advancing—the men would excavate a little portion ahead and then shove the spiling up, and excavate a little more and shove the spiling; that is known as advancing spiling; that is in ground fragile, easily broken, but not running, not particularly dangerous. Where the ground cannot be excavated at all until you have offered some support to it we have the same method of spiling. We drive it with rams into position and form a complete coverage to the men, often times both on the sides and the top, and then carefully remove that.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: I would like to offer at this time in connection with this testimony for illustrative purposes this poster as Plaintiff's Exhibit 32. [575]

Mr. Tinning: As I understand the offer, so that the record will be clear, this is a demonstrative diagram which you propose to use for the purpose of explaining the witness' testimony with respect to spiling or other forms of timbering, and it is not intended to represent any particular timber or any particular section in the tunnel, but demonstrates the method which he said he was proposing to use when he was making these estimates.

Mr. Marrin: That is correct.

(The poster was marked "Plaintiff's Exhibit 32.")

Q. Referring to Plaintiff's Exhibit 28, is any spiling snown on that exhibit?

A. Yes, spiling is shown on the arch, here, and was used throughout without exception, as I recall it now without any exception on the arch; on the sides sometimes the ground would admit of lagging but sometimes it was necessary to have advanced spiling and sometimes it was necessary to drive spiling.

The Court: Q. What were the dimensions of that timber?

A. The dimensions of the timber was 12 by 12, that is, the posts and caps were 12 by 12, and the lagging in most instances was 2 by 10 or 2 by 12, and the spiling generally 3 by 6 or 3 by 8.

Mr. Tinning: Might I interrupt, to save time? Mr. Larson stated without exception spiling was

(Testimony of Lewis Michael Larson.)

used. Do you refer to the area shown in the first model as having the timbering in the tunnel?

A. No, I am merely referring to this model.

Q. Going underground? A. Yes.

Mr. Marrin: Q. For what distance was that?

A. That was planned for 40 feet; that was the plan on each of the two tunnels on the west end and each of the two tunnels on the east end, a distance of 20 feet. [576]

Q. Further referring to the spiling, and referring to Plaintiff's Exhibit 32, will you explain from that the driving of this spiling, taking the operations in sequence, starting with the drawing on there, No. 1? A. Yes. This illustrates——

The Court: Pointing to No. 1?

A. Pointing to No. 1, illustrates the breast boarding, as we were presumed to have a liquid or a moving mass of material that threatens to come into the drift in advance of the time that it is wanted to come in. Now, this illustrates the way it is being supported in advance of the last set. This, by the way, is a set, this shows the posts and the caps that form the set, and the spiling that forms the side, the spiling that forms the roof, and the breast-boarding that protects the material from coming into the drift. Now, the first stage in wanting to make further progress to reach the position shown here by the dotted line would be a condition where driving has to be done instead of, as we term it, advancing. Spiling has to be driven—have you

(Testimony of Lewis Michael Larson.)

anything to illustrate a ram, any picture—I suggest that would be clearer.

Q. What is the difference between driving and advancing spiling?

A. In driving spiling you have to drive it in by forcible means from the rear. In advancing it sometimes you can tap it in with a light hammer, as the excavation is advancing, that is, progressively tapping and progressively moving in with your spiling. That is known as the advance system. Where you cannot do that at all but where you have to drive in in advance, as I explained a little earlier, it is known as driving spiling.

Mr. Marrin: In order that this may be clear to the Court, I would like to offer at this time, simply for the purpose of illustrating the ram, and for no other purpose, a photograph, as Plaintiff's Exhibit 33.

(The photograph was marked "Plaintiff's Exhibit 33.") [577]

Q. Will you explain to the Court, Mr. Larson, from that, what that picture illustrates?

A. This illustrates the ram by which the spiling is driven. You will note that it is suspended on a rope, so the men would not have to carry it, and it will swing forward and back without any appreciable lowering or raising; by being protected in that manner against lowering or raising, it gives a man on the forward end an opportunity of directing the point of driving; that is, he can head the spiling in——

(Testimony of Lewis Michael Larson.)

Q. In order to do that do you have to excavate for it?

A. This is back in the drift. I will illustrate here. The men who are driving that, if they are going to drive this one, are standing back there.

Q. The witness is pointing to Fig. 3 on Exhibit 32.

A. The men are always standing in an excavated drift, and these men are standing in an excavated drift and driving spiling.

The Court: Q. What do they drive that with?

A. They are driving it with this ram. It is like a big hammer, only it is of considerable weight and when it is projected forward there is a force applied by the men on these handles, it is like a pile driver hammer, in a measure, only being driven in a horizontal position.

Mr. Marrin: Will you proceed with your explanation of Exhibit 32?

A. We will assume that we are going to make a further advance of any definite number of feet, let us say 4 feet. We will take a piece of spiling that is longer than that by two and a half to three feet.

The Court: For the purpose of the record you had better note that.

Mr. Marrin: The witness is referring to illustration No. 1 on Exhibit 32. [578]

A. A piece of spiling is entered underneath the cap of the set next back of the forward set that has

(Testimony of Lewis Michael Larson.)

been placed and over the cap of the forward set; the spiling is driven by the ram until it passes this cap, in advance of the cap of the set back of the forward set; in advance of the time the spiling passes the cap of the set next to the forward one a block is put in above that spiling illustrated by sketch 3 of Exhibit 32. That is known as the tailing block. That prevents the spiling from dropping at the forward end and gives a general direction to the spiling as it is being driven. This Sketch No. 2 of Exhibit 32 illustrates the spiling having been driven over the top of the drift. This illustrates only one spilling—there may be several of them; there would be enough over the top of the drift to form a roof of the section that is to be excavated; then what we term side spiling is being driven, and in a very similar manner. This sketch which is blank—No. 4 we will term it—illustrates a similar condition.

Q. I will mark that No. 4.

A. These blocks in here that I am pointing to that rest against the post of the forward set—I should say the set is comprised generally of two posts and a cap. These blocks are placed in there in the position shown——

Q. The witness is referring to No. 4 on Exhibit 32.

A. (Continuing) —to hold a block or a piece of wood away from the post of the forward set, and the spiling is driven from that position so that the next spiling can be entered between the post and the

(Testimony of Lewis Michael Larson.)

spiling that has already been driven. In each case the spiling is fanned to give a greater dimension to the drift than the neat lines of the drift; the purpose of that is always to permit of other spiling being driven in between the outer spiling and the posts; this new spiling, in turn, was driven in starting between the old spiling and the post, but fanned out as the previous spiling [579] was driven. That driving of spiling on the outside of the posts, on one or both sidess, is done when the ground is unstable and won't stand without a protecting shield being driven in in advance of removal of the earth.

Q. Would you use that spiling in self-supporting ground, Mr. Larson?

A. No, indeed not, it is not necessary.

Q. Referring to illustration No. 1 of Plaintiff's Exhibit 32, do I understand you that illustrates the first set in the advance of a drift which had to be driven by using spiling and breast boards?

A. That is correct.

Q. Referring to Illustration No. 2 of Plaintiff's Exhibit 32, does that illustrate the next step which is followed when a drift is driven in that manner?

A. Yes, that illustrates the top spiling having been driven and the side spiling having been begun and the breastboarding having been begun.

Q. This one, for the purpose of the record, does that indicate the commencement of the breastboarding for the advance drift? A. It does.

(Testimony of Lewis Michael Larson.)

Q. With that complete these breastboards will extend down to the bottom of the drift?

A. That is correct; this being added as this earth is excavated below the other breastboard of the muck that is left in the drift; when that is excavated far enough down to permit another breastboard being placed below the one above then another breastboard is added and that is continued until you reach the point at the bottom of the drift, or as far down as the condition of the material that you are in will demand; sometimes it is not so liquid as it is at other times, and sometimes you can stop your breastboarding in half the distance.

Q. The purpose of placing that breastboarding in there is to prevent the unstable material from coming into the drift from the [580] cut before you are ready to take it out?

A. That is true; if it is permited to run and a cavity forms above, then the open area may come down and break the spiling already driven and catch men that may be working underneath it.

Q. These breastboards, as they are placed, are supported by a stull?

A. Yes, supported in position by a stull carried from the breastboard back to the cap or the posts of the set, against the face, or sometimes carried to the set back from the forward set.

Q. That term "stull" is a new term. A stull, as you use it in tunnel parlance or language means a brace, does it not?

(Testimony of Lewis Michael Larson.)

A. That is what it means, exactly.

Q. Then as you proceed to advance your spiling on the side and place the breastboards in this position—I am now referring to Illustration No. 2, you brace your timber to this post or cap and then remove the lower breastboard and take out a certain amount of material: is that correct?

A. That is correct, take this breastboard out and use it for the next breastboard in advance.

Q. Referring to Illustration No. 3 on Plaintiff's Exhibit 32, does that illustrate the completion of this operation which is commenced in No. 1 and No. 2?

A. It does. It shows the completion of the spiling that has been driven over the top, the spiling that has been driven over the back or the sides, and the breastboarding in position. The next step is the facing of the side, itself, which is illustrated here by the dotted lines. This dotted line below on No. 3 sketch that I am referring to indicates what we term the foot block, any block that is placed underneath the post to keep the weight of the material from driving itself down into the ground below.

Q. This dotted line on No. 3 is the commencement, is it not, of the post which is shown here on Plaintiff's Exhibit No. 28, to [581] which I am pointing, the dotted line, here?

A. Yes, that shows that post of the set or that may be any post.

(Testimony of Lewis Michael Larson.)

Q. That is correct, but it shows the commencement of that bracing operation? A. Yes.

Q. Referring to No. 4 on Plaintiff's Exhibit 32, does that illustrate an end view?

A. An end view of the boxed drift showing the spiling having been driven on each side, the spiling above having been driven, and the breast-boarding in, with a stull supporting the previous work, and new spiling having been started for the next advance, and other spiling that has been entered that has not yet been driven. Now, we have what is called fan spiling as against horizontal; in order to reach the corners or the greatest extent in width that is necessary in the driving of spiling, being confined in width at the backward side or the backward end of the spiling, it is necessary that some of the spiling that is being driven should be chamfered to a wedge shape, so that the forward end will fill that space that otherwise would be left open if you were to drive spiling in a fanned position, and that allows then and accomplishes the purpose of closing in the forward extension of the spiling, as well as in the backward end of the spiling, the complete excavated area, or the area to be excavated will have no opportunity for fluid material to come in.

Q. Mr. Larson, referring to Plaintiff's Exhibit No. 28, as I understand your testimony it is the circumferential drift system. Does that illustrate the method that you planned, or the method that was actually used?

(Testimony of Lewis Michael Larson.)

A. This illustrates the method that was actually used. The plan had to be departed from on account of——

Q. (Interrupting) Do not give the reasons right now, but just point out the difference between that and the method that you planned? [582]

Mr. Tinning: Q. You have an exhibit showing the plan he proposed, Mr. Marrin?

Mr. Marrin: Yes.

Mr. Tinning: Could we use that in this testimony?

Mr. Marrin: I believe we could; also point out there were more drifts actually used than planned, so this exhibit will not be confused with his planned method.

Mr. Wittschen: That was his planned method, was it not?

Mr. Marrin: Yes.

Mr. Tinning: That is Exhibit No. 27,—the one showing 11 perimeter drifts, starting at the bottom and running to the crown drift at the top—what he planned to use.

The Witness: Well, the difference being here, in the addition of 2 more drifts; instead of carrying 11 drifts, it was necessary to carry 13. The reason for that—do you wish that now?

Mr. Marrin: Q. You don't need to go into the reason now. This model does not show this separate timbering on top, separate drifts?

A. No. This model, to be complete, should show posts at the meeting point of the segments carried

(Testimony of Lewis Michael Larson.)

around, carried down to this central portion which is known as the core.

Q. Now, Mr. Larson, referring to Plaintiff's Exhibit 27, to Section "B," also referring to Plaintiff's Exhibit 30,—which is one of the wooden models,—will you explain to the Court, by reference to this model, the method of excavation which you contemplated using and which is known as the "wall plate method"'—you might just proceed to explain as it is illustrated on Exhibit 30?

A. Model 30, your Honor, illustrates the position of the wall plates, with respect to the subgrade. The subgrade is the bottom of the excavation that is to be made. The wall plate is placed in an elevated position, as shown on Exhibit 27, Section "BB."

[583]

Q. About what is the elevation of that, in this tunnel?

A. In this tunnel, it varies from around 15 feet to 17 feet 6, from the subgrade. The plan contemplated going in with the drift adjacent to the wall plate. After the drift had been advanced a certain distance, the wall plate would be entered to an exact elevation and to an exact alignment. On that wall plate, it was planned to erect permanent segments,—which is illustrated on No. 30,—showing a completed ring. That, however, was a progressive step. First of all, the wall plate would be entered——

The Court: Q. For the purpose of the record, the—define a "wall plate."

(Testimony of Lewis Michael Larson.)

A. A wall plate is a heavy piece of timber, depending in size and weight upon the material that is to be carried—generally, 12 by 12 or 14 by 14. I am speaking of inches, now, in the dimensional timber. It has a length varied for the ability to make an excavation of a certain length. Before entering that wall plate in its position, sometimes the ground is in such condition that you do well if you can get in 20 feet of wall plate; other times, you can get in 40 or more; that is a matter of ground condition. When the ground has been excavated and the segments—these are known as "segments" that form the arch—the timbers that form the arch, to raise the wall plate, are known as "segments."

Mr. Marrin: Q. For the purpose of the record, Mr. Larson, in explaining the wall plate described on Exhibit 30, you have been pointing to a horizontal piece of timber which is lying in the first drift, on the model; and, when you are referring to "segments," you are referring to a more or less vertical piece of timber—or timbers, which are resting on the wall plate? You may proceed.

A. When the segments are placed in position, a collar brace is placed between the new segment that has been put in and the segment in the set next adjacent to it; and the purpose of a collar brace is to [584] hold the proper alignment, forward and aft of the segment that is being placed to complete the next ring.

Mr. Wittschen: Q. Will you point to the collar brace? A. This is it.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Maybe I can explain that. In referring to a "collar brace," the witness is referring to a horizontal piece of timber between the segments; and, on this model, appearing above the wall plate.

The Witness: We will assume, now, the wall plate has been completed, and the segments placed on the wall plate. Those segments we have indicated in our sketch as "Segment A"; and a crew then begins the drift immediately above, which is excavated when the lower or the wall plate drift is advanced far enough to make it safe for workmen. That excavation is carried on, and, as the excavation proceeds, segments are placed on top of the segment that rests on the wall plate. That segment is generally indicated, in our sketch, as "Segment B."

I may state that, while the excavation is going on, on the left-hand side of the tunnel, a similar excavation is going on, on the right-hand side. I am describing only one operation; but each side of the tunnel is duplicated in that operation.

As the segments are placed and the excavation is completed and segments placed in the drift above, the wall plate drift collar braced, the collar braces are placed in that, and such lagging or spiling as might be necessary to prevent the material,—that is, the rock, from above,—falling into the drift. Sometimes it is necessary to drift and spile. Sometimes you can make the excavation without any lagging.

[585]

(Testimony of Lewis Michael Larson.)

Then you proceed with crews in the drift that is above this completed drift; that would be the third drift; and the following drift completed; in each case, the material in the drift above is dropped down and left in the drift, or used in the wall plate drift itself; sometimes it is wheeled out, by some means,—either a powered equipment or by hand equipment—and dumped into the main portion of the tunnel, at the face of the core, to be removed later on with powered equipment.

As the drift next to the top is completed and the timbers put on in the same manner,—a collar brace and lagging or spiling, as the case may be—in the manner as described below, on the top wall, is started.

The Court: Q. So I may follow: The core is still in there?

A. The core is always left in until the arch timbers are completed; so, if necessary, you can get support from the core to hold the timbers. Sometimes the order has been changed, and you may have to run your top drift in at the same time that you run your side drift, in order to hold a condition of the ground that is less favorable than the kind of ground which has been timbered by the method that you pursued; in which event, you give more support to the material from the top. That support is carried down onto the core, which is already in at this stage of the game. Then the timbers are placed in there. That is what is known as

(Testimony of Lewis Michael Larson.)

the "cap,"—that is, the top segment. It helps, of course, to form, in most cases, the key piece of timber. That now completes the arch, where it still is a key timber, even when you have to drive the drift first; but it sometimes is not the last piece of timber placed. Sometimes it is one of the first pieces of timber placed; in which event, the drift adjacent to the top drift is generally the drift as last completed, when you have the ground conditions that are unfavorable and you [586] have to drive your top drift first, and then you have to drive that muck out, or remove it by some powered equipment, from the drift, and remove it over the toe of the core, and get your support for the drift, and then crews are placed, to follow up; generally, one crew above the wall plate drift first, followed by another crew in the closing drift, which is adjacent to the top drift and which is spaced sufficiently far apart as to be no danger to the men working below.

Q. I am pointing to this drift which runs along parallel to the wall plate—that is what you refer to as the wall plate drift? A. Yes.

Q. And, ordinarily, that is excavated first, and then your second drift follows along behind, and then the third and fourth and so on?

A. That is correct,—generally carrying an average of 20 to 30 feet in advance of the next.

Q. Before any attempt is made to remove anything, when that system is followed, I believe you

(Testimony of Lewis Michael Larson.)

stated the timbering is completed over in the other wall plate,—a similar wall plate on the other side?

A. Yes.

Q. So that there is a complete arch over the core, supported by the two wall plates, before the core is removed? A. That is correct.

Q. To go to the next step in the operation: After the arch is completely timbered for the core, over the core, then what do you do; do you remove part of the core?

A. Yes. We remove part of the core; and that is conditioned, again, on the kind of ground we have. If the ground is favorable, it means that there is not much weight on the arch timbers. If there is not much weight on the arch timbers, you can shoot out and remove more of the core than you can if you have excessive weight above, for this reason: that the wall plate will suspend a certain distance, and a certain weight, dependent on the strength of those timbers, and the size of your wall plate. [587]

Q. You mean the unsupported wall plate?

A. The unsupported wall plate,—the overhang; the unexcavated portion; it supports the unexcavated portion, which will overhang the excavated portion a certain distance.

Q. In order to make it perfectly clear to the Court, Mr. Larson: if I am correct, this model shows a wall plate extending in that far; it is supported, on the end toward the portal, with these timbers which are called "posts"? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. It is supported on the other end by resting on the ground in the wall plate drift?

A. Generally on blocks and in a definite elevation to the wall plate.

Q. But the blocks are on the ground?

A. Yes.

Q. When you speak of the "unsupported part of the wall plate," you mean, as you excavate the core here, before you can get the additional posts in, there will be a certain ection of wall plate between the last post and the place where it is supported by a block in the drift, which will have no support under it?

A. There would be no support, and we have, ordinarily, neither the span—sufficient span or strength or weight above. When the ground is hard above, the weight is minor. When the ground is wet above, the weight makes it very heavy to excavate, and we may have to put another post in. As the core is excavated out, the post is advanced up to the excavated portion, to give support there to the wall plate, and the earth removed. That step is carried on progressively; as the core is removed, new wall plate is entered, new posts put in, and so on,—always, the drift being carried on in advance; the core being the last earth to be removed.

Q. That illustrates the wall plate method?

A. Yes.

Q. The method you intended to use, in the 700 feet—— A. 720 feet.

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: Were you going to show it as it was used? [588]

Mr. Marrin: Yes, Mr. Wittschen. We will show what was actually used, in the following testimony.

The Court: Q. Are you prepared to prove, now, how much of this method was used,—for what distance, if you know?

A. I would have to refer to the records.

The Court: Have you any thought?

Mr. Marrin: I might explain this, your Honor: It was our thought—this does not necessarily have to go in the record—but he was with the company until April 30, 1935, and thereafter did not have charge of any of the driving which went on for a year or so after he left. We may have the accurate information in our records. May we have the full face method explained now?

The Court: Q. What method did you call this?

A. This is the wall plate method.

Mr. Marrin: Q. Mr. Larson, you stated that the other method that you proposed to use was the so-called "full face method,"—which is illustrated by Section "CC" of Plaintiff's Exhibit 27. I would now like to refer you to Plaintiff's Exhibit 29, and ask you to explain the excavation, by the full face method, from that exhibit; and, in connection with that, we have another illustrated drawing, which is merely illustrative of the method, and which I would like to introduce at this point as Plaintiff's Exhibit 34.

(Testimony of Lewis Michael Larson.)

(The drawing was marked "Plaintiff's Exhibit No. 34.")

[Set forth in the Book of Exhibits at page 262.]

Mr. Marrin: For illustrative purposes, I would like to offer in evidence the poster, as Plaintiff's Exhibit 35.

Mr. Tinning: What do you call Exhibit No. 34?

Mr. Marrin: 34 is a sketch illustrating the self-propelled drilling and timbering Jumbo. No. 35 is a poster which illustrates the method of placing concrete and the Jumbo in operation in the tunnel under the full face method. It has no legend on it.

Mr. Tinning: Simply illustrative?

Mr. Marrin: Simply illustrative of that method.

[589]

Mr. Tinning: It is a method Mr. Larson says he was going to use after his 720 feet of wall plate drift was completed?

Mr. Marrin: That is correct.

The Court: Q. Which method, I take it, is the economical method. A. That is correct.

Mr. Marrin: Q. Will you proceed to explain the method which you proposed to use in construction, by the full face method, Mr. Larson? You may refer to any of these exhibits. In referring to them, will you please refer to the number?

A. This first one illustrates, your Honor, the drill carriage.

Mr. Marrin: The witness points to No. 34.

The Witness: A. The drill carriage, in position, showing the drifter on the bar, with relative

(Testimony of Lewis Michael Larson.)

positions of the drill carriage. I will describe the operation of the drill carriage, so as to make it clear, in the later conversation, what is intended.

This drill carriage was planned to have mounted on itself a self-propelling unit.

The Court: Q. Pardon me. That was to be the method used in the tunnel,—the rock tunnel?

A. No; that was used in the section—the one described,—what is known as the "full face method."

Q. I had particularly in mind the Hetch-Hetchy Bore,—that rock tunnel. Are you familiar with that?

A. I am not familiar with the upper portion of the Hetch-Hetchy; no.

Q. What I had in mind—I was up there at one time, going through there, and they were drilling through that rock; and I saw a sort of carriage. Would you call that a "carriage"?

A. Yes, a drill carriage.

Mr. Marrin: Q. Mr. Larson, you might explain that, by reference to this Plaintiff's Exhibit No. 29,—which is a model of the carriage—just how that operates.

A. It operates on a track, your Honor, and runs into the face, and also runs out. It would [590] have mounted on itself an air unit whereby it can be operated forward and backward, from air supplied from the outside. It would have another unit mounted on itself, which would be raised and low-

(Testimony of Lewis Michael Larson.)

ered. It has a platform on the drill carriage; and, in the position that would be necessary in drilling the next hole, this platform would be in, as illustrated, back in the back; but the method here would be for a reserve supply of storage when the driving is done for the timbers that would be used for putting up the next advance set; and when that would be completed, it would be used for the dynamite for loading the holes. The drill carriage was so designed or planned, and partly completed, on the job; and, when it was in those positions, it could be locked into position. The reason for that: it had to have a width sufficient so, when it was taken up from the face of the tunnel, that it would pass over a shovel,—air, steam or whatever you might wish to term it—a powered unit—so it would be free to slide over, or the shovel would be free to slide under. On this bar, illustrated here, is a circular extension of the drill bar for the purpose of permitting the arch—there is a section from here, up,—from the bottom of the top floor of the drill carriage, where the drifter could be advanced no further because of obstructions. To overcome these obstructions, a circular drill bar was placed, to carry the drifter for drilling the arched section of the face. While I have this chart, I think I should illustrate to his Honor the platform on top.

The platform on top was intended for crews to stand on, in placing the timbers, and for plugging. We speak of "plugging" where rocks that are not

(Testimony of Lewis Michael Larson.)

shot into the clear,—that is, not removed in clearance of the concrete line. It is sometimes necessary to drill holes in the rock,—which we term "plugging"; and put in a small amount of explosive there, and break that off. The purpose [591] of this platform was to make it as reachable as possible to all parts of the tunnel. That, as I explained a little while ago, also was erected on the drifter as well as on the drill carriage.

Q. Will you explain the operation of excavation by this method?

A. This sketch No. 35 illustrates the power shovel in the process of excavating the material that has been shot down in advance of the set adjacent to the face. It illustrates a swinging platform that was intended, after the shot was off—that men, by means of wire rope ladders, would mount this swinging scaffolding on which spiling had been previously placed. After the shot is off, they would mount onto this swinging scaffolding, and comb—what we call "combing the face"—taking the loose rock off; they would comb as much of the face as they could reach, and comb the arch, and they would advance that spiling, as illustrated in the previous sketch. It would be in a sort of cantilever position, supported by the spiling back of it. That would be a protection to the men who were working below; they would spile the arch section,—not close, but sufficient to protect any block of material that might—small blocks, that might fall off, from getting loose. As illustrated here, this spiling is in position.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: The witness is referring to Exhibit 29.

The Witness: A. This illustrates the face to be shot out next—the thought being, in this case, to place all of this timber inside of the concrete lining. These hatched portions indicate the ground, and the timbering is in, and what we term the "outside pay line of concrete," with a reasonable allowance for what we term "overbreak,"—which is outside and permits room for the spiling that has been placed, the thought being, as the concrete came along, to take out the timber set and leave the spiling in, if it were [592] permissible to leave the spiling in; if not, we could take it out. That would be conditioned on ground condition, again.

Q. And conditioned on the ground being self-supporting? A. Yes, that is the point exactly.

Q. Mr. Larson, after combing the face, what is the next operation?

A. While the face is being combed and the spiling is being placed, this shovel is loading the muck into whatever it happens to be. When the muck has been all removed, then the shovel will back out to a position—a position which is a safe distance, and the drill carriage will propel itself up to the forward position. While the muck is being removed, the drill carriage has been loaded with timber for the next advance set. When the shovel moves back, the drill carriage moves forward. In the advanced position of the drill carriage, illustrated here, the drifter is mounted on the bar.

(Testimony of Lewis Michael Larson.)

Q. A drifter is a drill, is it not?

A. A drifter is a heavy drill. The drill platform lowers to the position illustrated here,—Plaintiff's Exhibit 34. In Exhibit 34, the drilling operation is being done. It will be noted on that Exhibit No. 34 that there is a swinging platform on which the men will stand. The purpose of that swinging platform is that the men can drill to the best advantage, at a certain elevation; if they stand with a drifter at about their waistline, they can operate to better advantage than any other position. As they are driving, the platform with the men with the drill steel, and with the drifter, will be raised to the next point of attack where the holes are next to be drilled, and so on until all the holes have been drilled. When they have been all drilled, the next process will be to blow out the hole. When you drive a hole in a rock, there is always a lot of fine rock that has to be blown out. They will blow that, as the platform is being [593] lowered. When the platform is at the bottom, the powder that has been brought in,—the dynamite and exploder will be mounted on the platform, and the loading process will go on, as the elevation of the platform progresses. When the holes at the top have all been loaded to shoot the face,—there is only one way, and that is to put in each hole that has been drilled a stick of dynamite, put into what they term the bottom of the hole, and ram it into position with a wooden bar; then put in what they term the primer; and the primer is another stick of dynamite that

(Testimony of Lewis Michael Larson.)

has an explosive cap in it; these exploders are numbered from No. "0" up to whatever number might be required; sometimes it is "12"; sometimes as high as "15"; the reason for numbering is: we term them the "no delay,"—those are marked No. "O"; just the instant the power,—the electricity,—is turned on, they explode, and they follow —every one follows at a short interval.

The Court: Q. Does one depend on the other?

A. No; they all depend entirely on the live line that is carried through. The construction of the cap, now, generally,—the fulminator in it,—delays the inception, so it can be absolutely controlled. On No. "0", no delay, the instant electric current hits it, it explodes. The fulminator controls the subsequent rate of those which we term the No. 1 and No. 2 and No. 3, and so on, until your last one has been shot. The purpose of that is to control the break of your ground.

Q. What is the purpose of controlling the break of your ground?

A. The way you want it to break,—whether from the top, the center, or otherwise.

The Court: I see. [594]

It was planned in this instance to break at a point about 3 feet above sub-grade, with three sets of what we term "no delay," loaded with "no delay" fulminators; they would break the ground; then there were other holes adjacent to that, and that would enlarge the hole into a sort of inverted wedge shape and thus prevent the scattering of the muck—the

(Testimony of Lewis Michael Larson.)

first holes, the breaker holes, will oftentimes throw the material quite a ways back. That is for the reason that it costs a good deal, both in delay and in money, to clean up the track and open the face; that is a period of delay that we try to avoid as much as possible by confining the muck that is broken as near to the face as possible. To accomplish that, however, after these breaker holes have been shot and the enlargement process goes on, after the first shot next is a breaking into the hole that has already been made; very little scattering of muck occurs.

The Court: It is to control the muck?

A. Yes. Then we began what we term caver shots, that is, a shot that will bring down the lower or back end of the hole, and when it is shot it drops straight down instead of shooting out into the tunnel, and after a certain weight gets onto the lower holes they are known as lifters; they generally lie in a position that would have a tendency to throw the muck out in the tunnel if the load from the shot above were not on it; this is prevented by the muck from the breaker shots putting a heavy enough load onto the lifters when they are shot that they will only raise a disturbance, that is, break the muck and not throw it out into the tunnel. The last shots that are shot are the upper ones, and known as the ring shots, that help form the arch.

Mr. Marrin: In order that the record may be clear, Mr. Larson, you mean by the delay, do you not, only this, all of the shots are [595] discharged with one throw of the switch?

(Testimony of Lewis Michael Larson.)

A. That is correct.

Q. The entire delay is due to the difference in the cap, of the fulminating caps on each of the holes?

A. Yes.

Q. And the delay between one set of holes exploding and the next set of holes is only a second or so?

A. That is correct. The holes are shot and the whole breaking situation is generally accomplished inside of a couple of minutes.

The Court: What you mean by delay there is the whole purpose being to control the material, itself, to get the best possible results from your explosive? A. Correct.

Mr. Marrin: Q. If I may ask you another question, the best results in placing and also the best results in order to break the rock, is it not?

A. Breaking of the rock that can be removed, not an over-break; that is an important matter.

Q. I think, as you explained it, after the holes are placed along the bench above the bottom at the grade of the tunnel—the central portion of the face is blasted first?

A. Yes, first of all the enlargement is made from the V-shaped holes that are first formed.

Q. That is the central portion? A. Yes.

Q. Then that would take out these V-shaped portions in the central part of the face of the tunnel?

A. Yes.

Q. And then following that the next holes are exploded and there being no resistance there because

(Testimony of Lewis Michael Larson.)

the central part has been removed, would tend to throw the rock into that space?

A. Into the space that was accomplished by the first shooting.

Q. Mr. Larson, referring to Plaintiff's Exhibit 34, the entire face would be, the entire diameter of the tunnel would be drilled at that time, would it not? A. That is correct.

Q. And this dotted line section here which is ahead of the drilling [596] Jumbo would show approximately the amount of rock that would be broken down into the bottom of the tunnel?

A. That is a typical display to indicate it.

Q. Then the next step would be, if I understood you, to run the drilling Jumbo back into the tunnel shown on Plaintiff's Exhibit 35?

A. Might I be permitted to clarify that, I used the term "Drill carriage"—drill carriage and drill Jumbo are synonymous.

Q. And then run the cars up to the face, load it up onto the cars, that which has broken loose at the time of the blast? A. That is correct.

Q. Then after that is completed run the drill carriage up to the face and repeat the operation?

A. Yes, repeat the operation, as illustrated in this case.

Q. In that system there are no drifts, are there?

A. There are no drifts in that system, not as predicted, the ground being self-supporting.

Q. Now, referring to Plaintiff's Exhibit 29 again,

(Testimony of Lewis Michael Larson.)

is that a typical illustration of the timbering which you intended to use in the full faced method?

A. It is.

Q. There is no lagging contemplated on the side posts, is that correct?

A. There was none contemplated.

Q. A certain amount of spiling or lagging was contemplated over the arch? A. Correct.

Q. What was the purpose of that amount of timbering?

A. That was not a definite amount; it was definite only for the purpose of estimating, but it was a certain spacing which was assumed in order to get the quantity of timber that was necessary, and its purpose in being placed there was to protect the men below from the dropping of large blocks of rock; they would have combed or trimmed off the loose material, but this is not always possible [597] to accomplish; sometimes there are mishaps. These timbers were put in to prevent these mishaps.

Q. This timber which I am pointing to and this post and these segments going from one set over to the other is ordinarily referred to as a set, is it not? A. That is an independent set.

Q. If I understood you correctly it was contemplated that these sets would be removed before the concrete operation?

A. That was the plan.

Q. Now, Mr. Larson, what plan did you contemplate in placing the concrete lining in the tunnels at the time you made your estimates?

(Testimony of Lewis Michael Larson.)

A. I had planned on placing the concrete by the pneumatic system, using a movable steel form mounted on a form carrier as illustrated on this Exhibit 35. This is illustrated by this sketch. This portion, your Honor, shows a completed concrete section.

Q. May it be shown for the purpose of the record that the witness is pointing to the illustration at the lower left-hand corner of Plaintiff's Exhibit 35.

A. The next portion that would be presumed to be of concrete is illustrated by the position of the forms. These are steel forms mounted on a carrier, with jacks in position to raise or lower or space the forms out or in. The position here shown is a car of concrete, assuming the position of a car of concrete to be pulled up over a pneumatic gun; the pneumatic gun is shown below this ramp, that pipe leading out from it along the form carrier support; another pipe illustrated as going up over the top, the plan being to have laterals leading out from these pipes that are shown at an approximately half-elevated position, if the concrete is to be conveyed from there to the side wall, where it would be discharged into what we term elephant trunks—an elephant trunk is a column projecting down from a receptacle through which concrete is [598] dumped from a higher elevation to a lower position. When the side walls have been brought up--I should have stated that this car would be conveyed to its position over the pneumatic gun by a hoist mounted on the

(Testimony of Lewis Michael Larson.)

frame of the form carrier; it would be dumped into the gun, and dropped down and another one brought up, and the process repeated. As the gun was loaded the air under pressure from the outside would be placed into the gun, which would convey the concrete over to the side walls or up over the arch. Assuming the side walls have been completed, to complete the pouring of the arch it was planned to cut the pipe into shorter sections of about 5 feet and when the forward end of the concrete was completed to take off one section after another, as the concrete filled that form, until finally closing up the bulkhead. That pouring then would have been completed. This pipe, then, that formed the top would have been removed entirely off the form. After the concrete had the required period of set the jacks would be released and the forms would be brought down from the concrete and moved into a new position, and the operation would be repeated. That was the plan that was contemplated, but it was all predicated on one thing, that we could remove the core in advance of concreting.

Mr. Marrin: I would like to interrupt and ask you this question. On this illustration on this poster they show the tunnel, do they not, as if you were looking at the side cut in two?

A. Correct, at the center line.

The Court: We will be in recess until two o'clock.

(A recess was here taken until two o'clock p. m.) [599]

Afternoon Session
2:00 O'Clock P. M.

LEWIS MICHAEL LARSON,

Direct Examination (Resumed).

Mr. Marrin: Just before the noon recess your Honor asked Mr. Larson if he could state the number of feet of the wall plate method which had been installed. Have you checked the records on that, Mr. Larson. A. I have.

Q. Can you tell the Court how many feet were actually installed in that tunnel?

Mr. Wittschen: Is this only the part of the tunnel built under his direction, or the whole tunnel?

The Court: I was just asking casually.

Mr. Wittschen: I am not sure.

Mr. Marrin: He is testifying to the whole tunnel.

Mr. Tinning: That is, the whole tunnel that was constructed by the Six Companies?

Mr. Marrin: By the Six Companies.

A. There is a total lineal feet of tunnel of 3065.

The Court: In length?

A. That takes in the two tunnels.

Q. Both sides.

A. A total of 3065 lineal feet.

Q. Of the wall plating method? A. Yes.

Mr. Marrin: Q. How many feet of the drift method. A. 172.

Q. And of the full face method? A. None

Q. I did not ask you the size of these tunnels, Mr. Larson. Could you tell us the size of the tunnels?

(Testimony of Lewis Michael Larson.)

A. The excavation size, the size that it was necessary to excavate in order to get the timbers in to the right distance to admit of the concrete lining where the timbers were left in approximated about 39 to 40 feet in width, and the height at centers above sub-grade was approximately [600] 36 feet.

Q. Does the size of the tunnel have anything to do with the difficulty of holding the ground?

A. It is very material in adding to the difficulties if the ground is not self-sustaining.

Q. Is the larger tunnel more difficult to hold?

A. Very much more. It increases the difficulties as the size increases.

Q. How far apart did you plan to space the timbers under the various methods that you described this morning? A. 5 feet in all instances.

Q. Five feet?

A. 5 feet centers between sets, between individual members of the sets, that is, I mean the complete set, 5 feet to the center of the next set.

Q. Referring to Plaintiff's Exhibit No. 29, by that you mean it would be 5 feet between the center of the first segment and the center of the next segment?

A. Yes, and that if carried to completion it would mean 5 feet between every member of the set.

Q. What was the size of the timbers that you planned to use in that set?

A. It was contemplated 12 by 12.

(Testimony of Lewis Michael Larson.)

Q. That would mean the space between timber sets would be 4 feet?

A. Correct, that would be the length of the collar brace.

Q. You started to describe the concrete practice, and I am not sure just exactly where you had gotten, but in connection with that I would like to offer in evidence as Plaintiff's Exhibit 36 this poster which is illustrative of a pneumatic gun for placing concrete in tunnels or other structures.

(The poster was marked "Plaintiff's Exhibit 36.")

And I would like to also offer at this time two photographs, the first of which states that it is a 28-foot section of steel tunnel form of carrier erected at the Berkeley Construction Company prior to delivery to tunnel June 19, 1935, for the purpose [601] at this time of illustrating the testimony of the witness as to what a steel form is.

(The photograph was marked "Plaintiff's Exhibit 37.")

[Set forth in the Book of Exhibits at page 263.]

Mr. Tinning: What number is that, 129?

Mr. Marrin: 129. And photograph No. 130, another view of steel form of carrier, June 19, 1935, for the same purpose.

(The photograph was marked "Plaintiff's Exhibit 38.")

Q. Mr. Larson, will you proceed to describe the method which you planned to use in placing this concrete in the tunnel?

(Testimony of Lewis Michael Larson.)

A. I proposed to use what is known as the Hackley gun, a gun with which I was familiar and had used in the placing of many yards of concrete. It is illustrated by Plaintiff's Exhibit No. 36. This end of the gun, the backward end of the gun, shows a connection between the compressed air from the outside of the tunnel—referring in this particular instance to two tunnels—the hose that connects the air line to the intake or manifold of the gun. The gun is first loaded up, having concrete dropped in as its cover has been tipped back; it then fills a good portion of the body of the gun, the lid is returned to its closed position, and tightened down by this wheel and screw—that operates to tighten it; when it is secured the operator begins to make delivery of air to the intake of the air from the hose on the line on the outside and comes into this manifold; the first valve which is opened is the valve that connects with the long pipe. You will note on this sketch that there is a pipe that enters the longest pipe, there is the pipe that goes to almost the length of the inside of the gun; the purpose of making that delivery is to start moving the concrete in its free end and prevent it banking and plugging. When that concrete is started in this longest pipe and gets in motion through the pipe then the valve that controls the next longest length of [602] pipe is opened and it is carried in that open position, the longest one continuing to flow all the time and as the concrete is pressed forward the

(Testimony of Lewis Michael Larson.)

emptying of the forward end of the gun takes place; the next valve that controls next the longest length of pipe is opened and it carries more of the concrete in front of the longest or main delivery pipe, and when the concrete has gone pretty well out of the gun the fourth and last valve is opened. The pipe in this instance, just going inside of the shell at the bottom of the gun, has a tendency to throw less of the concrete upward. Each one of these valves is worked alternately so as to carry that concrete progressively to the delivery pipe, the longest pipe. When all of the concrete is moved out of that gun the operation is repeated again in the same manner.

Q. The illustration on the left-hand side of Exhibit 36 is simply an end view of the gun?

A. Yes.

Q. Is the concrete expelled from the gun with considerable force?

A. We aim to carry 100 pounds of air to unload the gun and it is a matter of very considerable force; it would be a dangerous force to stand in front of, if you were within a reasonable distance, say 50 or 60 feet or even 100 feet of the gun.

Q. Referring to the illustration on the right-hand side of Plaintiff's Exhibit 36, is this a portion of the pipe leading to the forms?

A. This is the end of the gun proper, and from here on this pipe, and that pipe is generally bent in a sort of "S" position. However, it does not

(Testimony of Lewis Michael Larson.)

mean, necessarily, that it has that particular bend. Sometimes the position of the gun means another additional piece of pipe before the sweep, as we term it, is put on; that is a long curved piece of pipe.

Q. Did you contemplate using that gun in placing the concrete here?

A. The estimate was set up on the use of that gun. [603]

Q. Did you explain the placing of the concrete as shown on Exhibit 35?

A. I was short in one explanation. It can be seen up there—this is on 35—there are some stulls that are indicated in this sketch that go on to the spiling and hold the spiling in position by the weight being transmitted to the forms. The purpose of that is to prevent any loose fragments that may possibly drop into the concrete where there may be an objection to its falling into the concrete, the thought being to keep that spiling in that position during the placing of the concrete, and if it should be opposed it could be removed. I think I have explained the rest of it, the delivery through the pipe to the side walls and over the arch, and the moving forward.

Q. About how far back normally from the face of the excavation would that concrete operation be carried on?

A. I had planned a distance all the way from 300 to 350 feet, so as to allow sufficient room be-

(Testimony of Lewis Michael Larson.)

tween the concrete unit and the excavation unit. There are trains working in here, switching cars, that have to be delivered to and taken away from the shovel. There has to be a location whereby the form carrier can be taken back, and when the concrete operation is going on there has to be a little distance in advance of the concrete form to allow the concrete car to be brought up where it can be taken by the hoist rope and carried up to its position. In order to allow sufficient latitude and work room I had planned a place between 300 and 350 feet as the proper distance.

Q. You planned to keep your concrete then 300 or 350 feet behind the excavation?

A. That was the thought.

Q. You spoke about using steel forms, Mr. Larson. Referring to Plaintiff's Exhibits 37 and 38, are those typical of the steel forms that you planned to use? A. They are typical.

Q. This portion going around here is a steel form—I am pointing to the circumferential part of the picture. A. Yes. [604]

Q. What is this within the steel form?

A. That is the form carrier that supports the form and these jacks that are illustrated as coming at different angles from the form carrier are the jacks that are used in spreading the form out to the necessary width, elevating the form to the necessary height. The dark interior is a row of track in such forms in order to carry the form forward; it would

(Testimony of Lewis Michael Larson.)

take very little adjustment, but the adjustment can be made, a form can be shoved over by driving studs against the form or by various methods.

Q. Have you explained how that operates? If you have not, will you do so?

The Court: What do you mean?

Mr. Marrin: I want to bring out the fact that this form is used and that it is jacked up, and then after the concrete sets the jacks are released and it is moved forward and re-set.

A. I brought that out this morning.

Q. What did you do with your estimates after you made them?

A. I made them up on individual sheets and as each sheet was completed I passed it to Orselli.

Q. Who was Mr. Orselli?

A. He was an estimating engineer in the employ of W. A. Bechtel Company, and he was assigned to assist me in making extensions and totaling up my figures to see that they were correct, and in getting the information on material prices that went into the construction, either temporarily or permanently.

Q. After the contract was awarded to the Six Companies of California did you enter its employ?

A. Yes, I did.

Q. What was your position?

A. Superintendent of tunnel work.

Q. What did you do thereafter in commencing the construction work under this contract?

(Testimony of Lewis Michael Larson.)

A. Immediately following the letting of the contract I assembled the necessary equipment and began its [605] installation for the progress of the excavation of the tunnel, and meanwhile collaborated with Mr. Fontaine in the excavation of the approach cut on the west end.

Q. Were any difficulties encountered in excavating that approach cut?

A. We run into unexpected difficulties; we run into one very soft place that apparently had been used at some previous time as the location of a water tank. We found evidence of it in timber that we removed. That made it difficult to find any way of supporting the tunnel and much of that material had to be shoved off by "cats", because the shovel could not get into it.

Q. What do you mean by "cats"?

A. Caterpillar tractors and bulldozers, that is a form of equipment; and in many instances we found that the material had a tendency to run outside of the right of way, the slope being steeper than the material would permit by carrying the open cut through the location of the portal; we had expected, of course, to find a considerable resistance there, because we were removing this drift to which I had referred, and it developed that there was very little of that material outside of the actual location of the drift, which was unfortunate—

The Court: This was on the approach of the tunnel?

(Testimony of Lewis Michael Larson.)

A. This was on the approach of the tunnel.

Q. From which end?

A. From the west end.

Q. That was out in the open?

A. That was out in the open. That was a prospect drift to which I referred yesterday, and in the removal of that we found some resistance, but outside of the drift very little resistance, and the tendency of the material to cave outside of the right-of-way line.

Mr. Marrin: Q. Did these slides delay the excavation of the cut any?

A. Yes; we removed considerable extra quantity of material which has been roughly estimated as 20,000 yards; to remove [606] that much material and having these slides, menaces, obstructions to our progress necessarily increased the period of time and incidentally the cost of the work.

Q. I show you, Mr. Larson, a series of 11 photographs dated from July 7 to August 8, 1934, can you tell us what those show without trying to describe each one? Just describe them generally.

A. They illustrate very graphically pictures of the conditions that were encountered in this approach cut to which I have just referred.

Q. And the slides that occurred there during that time?

A. The slides that occurred there, yes.

Mr. Marrin: I will offer these photographs in evidence.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: How many are there?

Mr. Marrin: There are 12. Haven't you twelve there?

Mr. Tinning: Twelve sheets or twelve photographs?

Mr. Marrin: There are 12 sheets.

(The photographs were marked "Plaintiff's Exhibit 39.")

[Set forth in the Book of Exhibits at page 264.]

Q. When did you commence the excavation of the West Portal Cut?

A. The exact date I have forgotten, but it was sometime in June.

Q. Can you state when you completed the excavation of the West Portal Cut?

A. Approximately the 28th of July we figured getting up to the portal of the future tunnel. [607]

Mr. Marrin: Q. Did you excavate any of the portal sections with the open cut method?

A. I tried to excavate, as an open cut, a section of the tunnel at the west portal. I carried the excavation on for a distance, as I recall it, of about 8 or 10 feet.

Q. Did you stop at that point?

A. I stopped at that point.

Q. Will you explain why?

A. The tendency of the material to run, not only beyond right-of-way lines but to run to the point where it might possibly endanger traffic on the old

(Testimony of Lewis Michael Larson.)

Tunnel Road, and enlarge the amount of material that would be necessary to move, thereby making the operation both dangerous and uneconomical, caused me to stop the excavation of the portal section at this point.

Q. Do you remember about what date you stopped that excavation by the open cut method?

A. As I recall it, it was July 28th.

Q. That was caused by the character of the ground; that ground would not stand under open cut?

A. It would not be economically feasible, and it would be dangerous to traffic.

Q. When did you commence the actual excavation of the tunnel, Mr. Larson?

A. I started the excavation of the tunnel on August 1st.

Q. How long did you continue excavating the tunnels? A. Until about August 10th.

Q. Why did you stop at that time?

A. The subcontractor, K. E. Parker, who was putting up the portal buildings, stated that our operations interfered with his construction of the portal buildings—May I describe the part we played in the portal buildings, along with this?

Q. Well, state the location of the portal buildings.

A. The portal buildings,—including the transition section, which will have to be considered as part of the portal buildings,—were erected at the

(Testimony of Lewis Michael Larson.)

portal to the tunnel; or, in other words, it adjoined the tunnel.

The Court: Q. This was a subcontractor?

A. Yes. [608]

Mr. Wittschen: I believe it should be brought out it was your subcontractor.

Mr. Marrin: Yes, it was our subcontractor.

The Witness: Yes, our subcontractor.

Mr. Marrin: Q. Was the portal building in the cut?

A. The portal building was in the cut, yes.

Q. At the west end of the tunnel?

A. Yes.

Mr. Tinning: With reference to this subcontracting: the work was also subcontracted on the excavation of the portal building, was it not?

Mr. Marrin: Well, the witness can state that, I think.

Q. Will you state what the situation was with respect to the subcontracting of the excavation on the portal buildings and the work the subcontractor did, up until the time we took the work over on the tunnel end?

A. McKinley and Crowell had subcontracts for excavating the approach cut, and K. E. Parker Company had the subcontracts for erecting the portal building when the cut was completed, with the power unit.

Q. What do you mean by "power unit"?

(Testimony of Lewis Michael Larson.)

A. By Caterpillar tractors, by Bulldozers and power shovels. We realized, at that time, that it would be necessary to push, as rapidly as possible, the construction of the portal buildings; and, in order to expedite this work, realizing the subcontractor was not equipped to travel as rapidly as we would like to have had him do, we proceeded with the excavation of the footings, trenches, to receive the footing concrete for the portal building. We carried that on for 24 hours a day, with all the force that we could put in there, in the way of men and tools. That was done, with a view to expediting this particular work, because, at that stage of the time—or, of the work, it was very apparent there were two very important things to be done: one was to get the [609] portal buildings up, so we could backfill and support the walls that had a tendency to slide; and another one was to get the tunnel far enough underground before the seasonal rains hit us, so we could carry on during the winter, realizing, if we failed in that, we might lose not only the portal building slope, but we might find it impossible to go underground in the condition that we found the ground at the portals.

Q. That was taking over the subcontracting work from—— A. McKinley Crowell.

Q. Yes? A. Yes.

Q. You spoke of the portal building being subcontracted. To whom were the portal buildings subcontracted? A. K. E. Parker Company.

(Testimony of Lewis Michael Larson.)

Q. Six Companies did not take over the work in connection with that?

A. No; they did not.

Q. Can you explain why—Well, before I ask you that, I would like to show you this photograph, and ask you what that represents.

A. That represents the beginning of excavations for the tunnel at the west portal; and it also represents the excavations that I have just spoken of, of the trenches for the footing concrete for the portal buildings.

Mr. Marrin: I will offer that in evidence.

(The photograph was marked "Plaintiff's Exhibit No. 40.")

[Set forth in the Book of Exhibits at page 276.]

Mr. Marrin: Q. Will you explain the conflict between carrying on the commencement of the tunnel work and the completion of the portal building?

Mr. Wittschen: May I have that read?

(Pending question read by the reporter.)

Mr. Marrin: I believe he mentioned that it was held up. I wanted him to explain the reason.

Mr. Wittschen: You are not charging us with that, are you?

Mr. Marrin: I am not charging you with anything, Mr. Wittschen. [610]

Mr. Wittschen: Very well.

The Witness: A. The reason it was held up: K. E. Parker, Subcontractors,—they could not proceed with the speed that we were asking of them. If

(Testimony of Lewis Michael Larson.)

we continued to interfere with their operations, by hauling this muck over the structure that they had to work on, it was very apparent to us that they could not—and, consequently, we suspended the operations, because it was more important for them to get the portal building up than it was for us to start on the tunnel.

Q. How long were the operations, before commencing tunnel construction, suspended for that reason?

A. Until August 23rd. I would like to answer, in connection with that, what we did, on the portal building, to expedite it. I think it ties in properly with this.

Q. Proceed.

A. When the portal foundation concrete was placed and the reinforcing steel sticking out of these footings for the concrete of the walls, we had been fortunate up to that point in guessing that the side walls would stand. Almost immediately after this concrete was poured, a slide came from the north side, over this footing concrete. We cleared that away; and in an effort to still further expedite the construction, we arranged with the District to permit us to use quick-setting cement, and put the cost of the difference to our own account. In addition to this, it became very apparent that some support would have to be given to those side walls of the cut, because men were working immediately below those menacing walls; and it was not only for

(Testimony of Lewis Michael Larson.)

the sake of the men but for the sake of the construction, that it became necessary. Consequently, I placed breastboards along the wall of the cut on each side, and we furnished the Parker Company with the timber and paid them for making shores between the two walls, meeting those breastboards that I had placed against the walls of the cut. The reason we did that, instead [611] of carrying it on ourselves: they had to do the erection of the walls of the portal building, and it would be a conflict; we might place one of the stulls where it would be immediately in their way. In order to concentrate the work in the hands of one party, we paid the Parker Company for doing the erection work and supplied them with the material. He carried that construction across between the walls,—which was quite a considerable distance—approximately about 120 feet. Those shores had to be carried to safeguard the sides of the cut against going in on the portal building. After the portal construction was erected, we induced the Parker people to work with all the force that they could work, in order to expedite the construction of this portal building, the purpose being to get the side walls up and the first floor on above the subgrade, the walls being vertical walls and not having any cantilever or counterfort subsections; so it was not safe to count on, as that was unsupported. It appeared that it would be very important to get the first floor above subgrade placed; also, so the backfilling of the wall could be pushed as rapidly as possible. By getting that back-

(Testimony of Lewis Michael Larson.)

filling done, it would reduce the hazard of this material to fall, even though the slope maintained would be the same; the elevation would be less, and, if it did slide, it would have a flat place to slide against before it reached the portal timbers, instead of coming directly against the portal timbers.

Q. When did you get to the point of recommencing excavation on the tunnels themselves?

A. My recollection is it was on August 23rd, when we resumed operations, and that was on the south tunnel.

Q. All of these dates, which you are speaking about now, refer to 1934?

A. These are all 1934, now.

Q. Will you state, Mr. Larson, what you did in connection with the excavation of the tunnels, from the time you commenced—Was it [612] August 25th, or 28th? A. August 23rd.

Q. —1934, until you stopped excavating and poured the first concrete?

A. We began, on the south tunnel, on the 23rd day of August, or approximately that; that is my recollection—with the two lower drifts that were indicated this morning. We started in with the purpose there of trying to find what I still believed would be found: self-supporting rock. I proceeded with the lower drifts to the point where it was safe for men to begin excavating for the second drift,—the second drift being the one immediately above the two lower drifts. Those are the lower drifts

(Testimony of Lewis Michael Larson.)

there. There were two; one on each side; one drift here, and one here. These are the drifts (explaining chart to the Court.)

Mr. Marrin: Let the record show the last question related to Exhibit No. 40.

The Witness: The condition of the ground indicated to me that it would be necessary to increase the number of drifts and to shore them and to work a closer spacing of the timber than that which had been contemplated. I had not gone very far until there was a tendency of the hill to try to slip down upon us. We tried to counter that; and I countered it by putting braces from the posts and the cap down to a concrete strut that ran between the walls of the portal building, to find the positive position for the end of our shores.

Q. I show you a drawing which is entitled "Typical West Portal Bracing"; and ask what that illustrates.

A. That illustrates the shoring that I found it necessary to put in to support the structure against the tendency of the hill to come toward the portal building from the line of drive.

Mr. Marrin: I offer that in evidence.

(Drawing marked "Plaintiff's Exhibit No. 41.")

[Set forth in the Book of Exhibits at page 277.]

[613]

Mr. Marrin: Q. Mr. Larson, will you just explain to the Court what you did in bracing the timbers in the drifts?

(Testimony of Lewis Michael Larson.)

A. This line is the east line of the portal building that was first in process of construction, progressively increasing in height. At the time we began this lower drift excavation, it had reached an elevation of about, possibly, 15 feet, or maybe even at 20 feet—I have forgotten the elevation; and the shores, that I mentioned as having been placed against the posts and the cap of the drift, are illustrated here, and brought down to find its support against the portal building footing.

The Court: Q. Was the hill giving way?

A. Yes; it had a tendency to slide this way, and we were driving in this direction. I found this was insufficient, because the weight of this material and this shore in here had a tendency to lift that post up; I had to drop in and put in additional collar braces on the face of the lower drift, and put these extra braces, or longitudinal braces, in to counter against that tendency to run. As that work progressed in the lower drift and reached a point where we could begin on the second drift, I found the same condition prevailing; there was a tendency all the time for the hill to come against the line of drive. I loaded the top drift, to give as much weight as I could give to these timbers, and, by having additional shores over to the portal building, as these different drifts were opened up; and when I came to a point which is about as high as was convenient to have more shores, I put a series of shores from the portal building, and I found, at

(Testimony of Lewis Michael Larson.)

that point, that the shores then had become so long it was necessary to tie them laterally as well as in their vertical supports. I contemplated to run this way and run toward the portal building, and it was so severe that I found it necessary to continue putting in braces to counter that thrust inside the drifts themselves; and, [614] in order to get a full support over the wall tunnel, I placed timbers across that would catch the drift from the right-hand side and the left-hand side, and carried shores, from different points along that timber, to the portal building. Then the shores began to buckle and took a position much like a bow. By the time I had got into the fourth drift—keeping in mind that the lower drift is number one, the next above it is number two, the next number three, and then number four—I found I had not succeeded in stopping the hill. I had countered with timbers put in at 4-foot spacing. To keep the spacing from the sides, I found it necessary to put in wall plates.

Q. Had you, at that time, had any wall plates in your plans?

A. No; I had not planned on shores or wall plates; diagonal bracing; only enough to support as was necessary, because I thought it would be very much different kind of ground.

The Court: Q. How long did this condition prevail? A. This condition——

Q. Just on the approach?

(Testimony of Lewis Michael Larson.)

A. Yes. I will bring it up to that point. We got in the first 12 feet, and then No. 4 drift on the south side,—the south tunnel,—and had opened the two lower drifts in the north tunnel, and were just beginning the excavating above the second drift in the north tunnel, when it became so menacing above, I pulled the men out of both tunnels, and I placed additional supports,—put in such additional shores as were possible; and I could see it was coming; and, about ten minutes after I pulled the men out, about 2000 yards came down from over the portal of the tunnel, closing the drifts.

Q. Had you figured on that?

A. Well, I had figured that first slide.

Q. About what date was that first slide? Can you fix the date? [615]

A. This would have to be a guess,—an estimate —About the 15th of September, I would say. I did not keep any date on it. I am just guessing at the time it would have taken to do that much work.

Mr. Wittschen: Q. The 15th of September, 1934?

A. Yes—that is just an estimate; I don't know whether I am within a week of the correct date.

Mr. Marrin: I think that sufficiently explains that. At this point, I would like to offer in evidence, for illustrative purposes, this poster, which is on the easel, in connection with the testimony that is coming up from this witness and others. It shows, Mr. Tinning, for your information, the various

(Testimony of Lewis Michael Larson.)

methods used in excavating, and the places in the tunnel where they were used.

(The poster was marked "Plaintiff's Exhibit No. 42.)

[Set forth in the Book of Exhibits at page 278.]

Mr. Marrin: Q. Mr. Larson, would you proceed and explain the method of excavation which you used in this first part of the tunnel and any difficulties encountered? In doing that, would you refer to any of these exhibits or models which will illustrate your testimony?

A. This, your Honor, marked "A" on Exhibit 42, shows the method used in excavating the first 92 feet; that is, from the point where we began until we reached a distance in 92 feet from the portal building on the south tunnel, and a distance of 110 feet from the portal building on the north tunnel. The same method was used in showing the two lower drifts; two second drifts, third and fourth, and so on—and the top drift; showing also, in a rough way, the stulls that were necessary to hold the segments in their positions.

Q. How did that differ, Mr. Larson, from the method which you had planned to use in the west 40 feet?

A. I had in mind, there, to use a reduced lower drift; I thought it would be necessary to go in only 40 feet; consequently, I would not need to make as large a lower drift. I may say the reason for it is this: this drift work is [616] always more costly

(Testimony of Lewis Michael Larson.)

than any other method that I know of; consequently, leave as little material in the drift as possible; leave as much material in the core—which is what we term "cheap muck." I had planned to use a total of 11 drifts, to make the circumference, instead of 13, which I was compelled to use on account of the condition of the ground. These segments were planned to be 7 feet, approximately; they were reduced to about 5 foot 3, in order to give strength, and still at the same time to leave room enough for men to work not at too much disadvantage.

Mr. Tinning: Q. Mr. Larson, may we, for the purpose of keeping some measurements here, follow the stations in which these various parts of the construction were carried? For instance, this 92 feet: what station would that be?

A. That would be for the south tunnel; about 112 plus 45.

Mr. Marrin: Q. I want to direct your attention to the longitudinal drawing appearing on Plaintiff's Exhibit 42. By the way, will you, for the benefit of the Court, explain what is meant by an "engineer's station"?

A. An engineer's station is a unit of measurement. The first station is "0", "1", "2",—which indicates 100, 200, 300, and so on.

Q. 100 what? A. Feet.

Q. In other words, there are 100 feet between stations? A. 100 feet between stations.

(Testimony of Lewis Michael Larson.)

Q. Your first station is No. 1. The distance between No. 1 and No. 2 would be 100 feet?

A. Yes.

The Court: Q. Does that show on that drawing?

Mr. Marrin: The stations are shown here.

Q. Will you point out the stations to the Court?

The Court: For the purpose of the record, I would like to have the witness describe, in his own way, what this chart depicts, [616-½] generally.

Mr. Marrin: Q. Can you explain that?

A. I can; I can explain the whole thing, although I was not on the work for the whole period.

Mr. Wittschen: It might be well to show the station starting at the beginning.

Mr. Tinning: 2½ miles down the road. We will stipulate to that.

Mr. Marrin: Will it be stipulated the first station under this contract was located approximately at Keith Avenue and Broadway?

Mr. Tinning: The west end of the project, certainly.

Mr. Marrin: And about 2½ miles from the westerly portal of the tunnel.

The Witness: The westerly portal, the station on the west portal of the north tunnel was 111 plus 42.55, and the west portal of the south tunnel was at Station 111 plus 53.25.

Mr. Marrin: Q. When you say 111 plus 53.25, that means what?

(Testimony of Lewis Michael Larson.)

A. That means 111 stations, of 100 feet in length, from the beginning point of the project, for this contract plus the fraction of a station.

Q. You say 111 plus 53.25 means 111 stations plus 53.25 feet?

A. Feet; correct. The excavation on the south tunnel, I believe I had indicated, stopped at approximately Station 112 plus 45; on the north tunnel, at approximately Station 112 plus 53.

Mr. Wittschen: Q. You would wish to correct that, wouldn't you? You gave it 111, before, plus 53. It is——

A. 111 is the station. 112 is what it should be; that is the stopping point on excavating for the first lining, the portal being at 111 Station.

Mr. Marrin: Q. Will you explain, generally, to the Court, what that diagram represents?

A. Yes. This, Your Honor, represents——

The Court: What diagram? Identifying it, for the record. [617]

The Witness: A. Exhibit 42. The section marked "A" is a cross-section of the method used in the first excavation of the full drift method that has been delimited by the station number.

Mr. Marrin: Q. How is that shown on the longitudinal section of the tunnel?

A. That is shown by this blue color, by the index "A" indicated in the blue. The next, Section "E", shown—also illustrated by a cross-section, shows a distance of approximately 42 feet in

(Testimony of Lewis Michael Larson.)

the south tunnel, following this first excavation. That would work out—If someone will work out the mathematics for me——

Q. Well, you don't need to be so accurate on the number of feet.

The Court: Well, if you want to do that, we will take a recess for five minutes.

(Recess)

Mr. Marrin: Q. Will you explain what this represents,—this poster?

A. The poster marked "B" represents——

Q. You are referring to Plaintiff's Exhibit 42?

A. Yes, 42, section marked "B" represents the wall plate method as used in that section represented by the "B" here. "C" illustrates the method used in this section of the north tunnel indicated by the mark "C." The "D" represents the section used in the north tunnel indicated by the legend "D." "E" represents a section of the south tunnel, represented by a cross-section indicated by the legend "E." "F" represents the section in the north tunnel and a section in the south tunnel, both indicated by the legend "F,"—a cross-section indicated by the legend "F." "G" represents a section of the north tunnel indicated by the legend and cross-section marked "G." "H" indicates a section of the north tunnel indicated by a cross-section and legend marked "H." "I" indicates a section of the south tunnel, excavated by the method indicated in the

(Testimony of Lewis Michael Larson.)

cross-section also [618] marked "I." "K" indicates a section in both the north and south tunnels near the east portal, indicated by a cross-section with the legend "K."

Q. What does the white portion of the longitudinal section of the tunnel represent?

A. The white portion between the colored portions indicates the part that was not completed by the Six Companies.

Q. Will you point out, in those systems represented on Section 42, what would be known as the "wall plate system"?

Mr. Wittschen: Mr. Marrin, before you leave that, were you going to put the time element in evidence? In other words, during the period of time these various things were done——

Mr. Marrin: That will all be shown in detail by following witnesses, Mr. Wittschen. I had in mind simply giving a general description for the information of the Court as to what this exhibit represents, and thereafter Mr. Larson will testify in detail as to the part he excavated.

The Witness: A. The wall plate method, your Honor, is indicated by the cross-section marked "B", legend "B", the cross-section of the tunnel with the legend "C", the cross-section of the tunnel with the legend "D", and the cross-section of the tunnel with the legends "G", "H" and "K." [619]

Q. Which of those sections there represents the circumferential drift system?

(Testimony of Lewis Michael Larson.)

A. Legend "A".

Q. What do the others represent?

A. The one represented by "E" is a short section that was driven in the south tunnel whereby the excavation was moved from the two outside edges of the tunnel by one vertical drift on each side, the top drift which was in the mud section, and then by what we term the ring, whereby the excavation was shot down into the lower drifts.

Mr. Tinning: Q. What do you mean by the "mud section"?

A. We found mud in the south tunnel.

Q. You are referring to the material?

A. I was referring to the type of material that we encountered.

The Court: Q. You encountered that material at that point?

A. Yes. "F" section represents a method pursued whereby the two lower drifts were advanced a certain distance ahead of the two drifts immediately above. This did not always hold true, for the reason that bad material was encountered in the lower drift, and it was necessary in one or two instances to pass the second drift over the point where the trouble had occurred in the lower drift in order to stop the run of material into the lower drift. In general, the lower drifts were advanced first, the second drift following, and then the ring taken out as one operation, and the core as the last operation. "G" section indicates the removal——

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. Did you describe that as the wall plate system?

A. Yes, I have already described it. The "I" system indicates the removal of material from a lower drift, two lower drifts, with two second drifts above and two thirds above.

Q. And then the ring was taken out?

A. Yes, and then the core.

Q. You have mentioned and pointed out these different diagrams, Mr. Larson, as the wall plate system. Do any of these represent the [620] wall plate system which you contemplated using when you estimated the work?

A. With certain modifications, yes. Type "B" represents approximately the method that I had in mind, with this exception, it was necessary on account of the formation we encountered to drive the top drift along with the two wall plate methods, which varied it from a wall plate; it became necessary to drive this below the wall plate, and support the ground by spiling on one side on the outside of the tunnel by spiling or breastboarding the core and by breastboarding that portion of the drift that lay immediately below the wall plate; therein it differed. Does that answer your question?

Q. Those are simply modifications of that system? A. Modifications of that system.

Q. Will you proceed, Mr. Larson, and explain to the Court the excavation of the first 92 feet in

(Testimony of Lewis Michael Larson.)

the south tunnel and the first 110 feet in the north tunnel?

A. I believe I had reached a point where I had begun the second drift in the north tunnel and had proceeded a certain distance in with the fourth drift in the south tunnel when that slide of material came from the face of the tunnel. It would probably be proper to drop back and state that in the south tunnel, No. 3 drift, I ran into a rather soft mud formation where it was necessary to resort to this method of driving spiling as explained earlier.

The Court: Can you indicate it on the chart?

Mr. Marrin: The location of it?

The Court: Yes.

A. The location of the drift—this is the drift to which I refer.

Mr. Marrin: Where is that, referring to Plaintiff's Exhibit 42?

A. That would be in the "A" section near the west portal.

The Court: I understood that is where it was but I wanted it in the record. [621]

A. About the time that I began driving the two No. 4 drifts I had got the two second drifts well started in the north tunnel, but in the No. 4 drift on the right-hand side of the south tunnel, this mud, soft mud condition continued forcing the driving of spiling and breastboarding to keep the mud from running into the drift; I began to encounter mud

(Testimony of Lewis Michael Larson.)

also in the fourth drift on the north side of the south tunnel, where spiling was driven, but the material was not so soft that the breastboarding was necessary. That mud continued in to the fifth drift and the top drift of this same tunnel, and we would drive the spiling on the outer rim and do just a little breastboarding, because the mud had a tendency to stiffen at the point where it would not actually run in on us, but it carried so much weight that it was necessary to put stulls from the segments down to the core, and we found some difficulty in supporting it in that position because the core contained mud and I had to take in big wide foot blocks, that is lumber with considerable width in it, to keep the weight of the material above from pressing the post down in through the core. On the north tunnel—I will finish with the south tunnel first, however. By the time that I had got the fourth drift started, as I recall it, and the crews had reached a point in the south tunnel where it appeared that we were going to find self-supporting rock, it was a sort of resistance point, and I was looking for it, because the season was becoming so far advanced that the rains might be expected in a very short time, it was important to find that hard place and get the excavation stopped and the concrete in to support that portion of the tunnel. When I found that I stopped the crews in that portion and began the excavation of this fifth and the top drift, and one each of the following drifts, 2, 3, 4,

(Testimony of Lewis Michael Larson.)

5, in the top drift, all the same distance in from the portal, a distance of 92 feet from [622] the portal; I stopped during excavation on the south tunnel and began immediately to prepare for concrete. In the meantime excavation continued in the north tunnel; I was a little disappointed in reaching the distance that would be equivalent to where this firm material had been reached in the south tunnel, and had not found a similar condition in the north tunnel. I carried on to a distance of 110 feet expecting every time I excavated that I would encounter hard material. A point was reached where I could not continue to drift any longer for fear of not being prepared in the north tunnel for concrete by the time I finished the concrete lining of the portal section of the south tunnel, so I stopped at a distance of 110 feet on the lower drift. In the driving of that tunnel the condition was a little bit different. The material was badly broken, but it was not of the muddy and soft running type; it did not require the driving of any spiling, but it did require very careful handling because of the broken nature and the fault that ran through in different sections of the north tunnel, and I found that we had a handicap in getting the necessary help, it was a most dangerous and difficult portion of the tunnel, and the lack of experienced help—we had to employ through the National Labor Agency; the conditions of employment first were to hire ex-service men and then men with families

(Testimony of Lewis Michael Larson.)

without very much regard to whether or not they fit the work; however, we managed to get through it without any mishap. We had one run in the third drift of the north line, third drift on the right; that was the only menace that we had from material that got beyond control, and it did not amount to a great deal, but we did have a difficulty that developed on the left-hand side of the north tunnel. As we proceeded there a fissure opened in the material, itself, at a distance, as I recall now, of about probably 15 feet to the north [623] of the tunnel. I don't know that we have any pictures that illustrate that, but as we proceeded to go in there that fissure became more and more open, a terrific weight came onto our tunnel at that point, requiring me to carry stulls from the segment over to the core to find support against the core to keep the timber from collapsing and the tunnel from going out. That fissure developed to a point where I used it as a chute for broken material for back-filling the building; and when that weight was transmitted by the breakage of that cleavage, of that crevice, throwing the weight of that portion of the hill onto the side of that tunnel, it required quite a little bit of tunnel support to keep the segments from coming in; some came in as much as ten inches, as developed later when I poured the concrete we had to do a lot of trimming. When we reached a point with all drifts 110 feet from the portal the excavation was stopped on that tunnel, too, and we began

(Testimony of Lewis Michael Larson.)

immediately to prepare for concrete. I will drop back now into the south tunnel. In the south tunnel, on account of not being able to hold the excavation with timber without leaving the core in, it was necessary to find some means of concreting leaving the core, because the core was necessary for the support of the structure, and, later on, for the support of the concrete forms, and consequently I erected some wooden forms in the different drifts and covered those wooden forms with metal, which was required to give a smooth surface to the concrete; when the forms were erected and we began concreting—I should say we had reinforcing rings put in there; the method we had thought would be used was the A method, which indicated one line of reinforcing steel on the inner circumference of the lining, and two rows of reinforcing steel were placed, and when the pouring began we poured a distance of five feet six inches in height in each of the two lower drifts [624] by means of buggies; I had a concrete mixer on the outside and we used buggies, concrete buggies, for transporting the concrete into the forms. When that section was poured up to the five-feet six-inch line I proceeded to pour concrete by means of a Hackley gun that has just been described, by passing a pipe over the top of the form at the center. We immediately ran into a difficult situation there, to deflect the concrete down the two side walls and to meet the conditions of the specifications, which were that the concrete must

(Testimony of Lewis Michael Larson.)

not drop more in a vertical distance than six feet, if it were not in an enclosed pipe, and that it must not be moved more than three feet either way from the point of placement. Under the conditions which prevailed it was difficult. The District Engineer saw our problem and permitted us to bulkhead a distance of about 20 feet, which meant that we could move the material farther than we had first feared it would be necessary. Now, in the placing of that concrete, in the deflecting of the concrete we put a baffle box up there to try and split the concrete and try to get it to go both ways, but when we came to deliver through a pipe with 100 pounds of air behind it and then tried to deflect it, the result was our pipes would plug and the stuff would collect and build up over the center line and not find its way down the elephant trunk. We had quite a struggle and finally managed to get the wall up a distance, as I recall it now, of about eight or ten feet beyond the first pour that was made, when it became necessary, by the orders of the District Engineer, to scrape the cement that had spilled from the force of its delivery over the reinforcing bars and had lodged itself on the forms that confined the concrete. My recollection is I built a key wall at that point—by a key wall is meant inserting a piece of wood or other material that will form a sort [625] of sand bar or something similar to that, so that when the next concrete pour is made on top of it there will be no tendency to side slippage. We

(Testimony of Lewis Michael Larson.)

finally managed to get the wall poured up to the point where the engineer permitted us to do it from the top and fill it from the center pipe.

Q. When you say "the engineer," what do you mean?

A. The District Engineer or his representative. I have that in mind. At that time, and prior to that time, we found that considerable trimming of the sets was necessary because the weight of the structure above forced this timber in. I neglected just one thing that may be important to drop back to here; when we reached a point almost to the end of our excavation in the south tunnel several large cracks began to develop on the hill back of where the first slide came, and I realized that from the state the tunnel had been in and the weight of the forces were bearing in on the timbers, they were acting, if another slide came I would lose the whole tunnel. Consequently we got the nearest and the quickest drag line that it was possible to get, built a temporary road from the old tunnel road down over the portals of the new tunnels which were being excavated, brought a "cat" and bulldozer down, and by working 24 hours a day we managed to remove the menacing slide, dragging it as far back as possible with the drag line and bulldozer and cat pushing it from the point where it was a menace. That relieved the weight on the south tunnel, but not sufficiently to prevent the remaining weight shoving our timbers down within the con-

(Testimony of Lewis Michael Larson.)

crete line, and to trim those timbers with reinforcing steel within three inches of them, or more than two inches of them, was very costly, slowed up the progress, but it was necessary to keep the timber outside of the concrete line. After having poured that first 20 feet we put in another bulkhead. I should have said that we began [626] the pouring from the inside, the farthest distance in, that is 72 feet approximately, and that gave a sense of security because it would have a tendency to check any further slide over the most vulnerable section of the tunnel. I then erected a bulkhead in there approximately 20 feet toward the portal, and by using the same method succeeded in pouring the next section of 20 feet. The next pour was approximately 12 feet. By the next, I mean pouring from the previous concrete that had been finished, and completed the arch, which was 12 feet from the slope of the hill out to the edge of our concrete, and reduced the menace. That left approximately 40 feet of the arch of this south tunnel to be poured, which was done by hoisting the concrete up to the floor line of the portal building and using buggies from that point to convey the concrete into and upon the forms of this open section, thereby completing the pour of the lining for 92 feet, and the portal section. Just as soon as that was completed I began pouring the north tunnel. Meanwhile, while we were doing this other work in the south tunnel I had prepared the north tunnel for the receipt of con-

(Testimony of Lewis Michael Larson.)

crete by erecting the forms, getting the reinforcing steel in, getting the pipes, the concrete delivery pipe, which is a 6-inch pipe that led from the Hackley gun to the point of discharge, that was installed, and we were permitted at that point to place a pipe in each wall. I will drop back and state that in the first pour it was not permitted, that is, we would pour one wall at a time and then pour the next wall. I tried to put that point over——

Q. Not permitted by whom?

A. By the District Engineer or his representative, and consequently we poured one foot on one side and then shifted to the other side to pour that; we were permitted to finally pour four feet on each side and then shift our concrete [627] operations over to the other side and pour four feet, but there was one handicap in the delivery of concrete by the pneumatic method, that you cannot work very close to that, because it is much like working in front of a Gatling gun, the men have to be in the forms while the concrete is being delivered and then the concrete operation held up while the men get into the forms and vibrate—by "vibrate" I mean a manufactured vibrator that is operated either by electricity or by air, that causes the concrete to move into all sections of the form and compact the concrete. To do that it was necessary to stop the delivery of concrete each time it was necessary to do that vibrating, which prolonged the period of time for the concreting of this portion of the tun-

(Testimony of Lewis Michael Larson.)

nel, as I recall it, for twenty days, from the time that the excavation was stopped until the concrete operation was finished. The District Engineer permitted us in pouring in the north tunnel to go to a point about fifteen feet above sub-grade, enter the pipe in each of the two walls and pour one wall at a time. This was a very big help, the conditions being that as we poured the wall and the concrete came toward the portal you could use the same method of beginning at the farthest extended part of the tunnel and bring it out toward the portal. As it built up in the wall at the farthest point distant from the portal we took off sections of pipe, five-foot sections in most cases, and kept shortening the delivery pipe until that wall was completed to the elevation the Engineer permitted, and it was keyed at that point by a wooden key that could be later removed. Then the other wall was poured to the same elevation and keyed. The next operation was to pour from a point at a little distance below where the concrete would flow from the arch. At that point we built another bulkhead with the key in it and put the pipe within the bulkhead and began the delivery of our [628] concrete through that in that position on one side and then shifted to the other side. With this method of delivery it was possible for the vibrator to work continuously in advance of the delivery of the concrete and it shortened our operation materially. We succeeded in building that section by the delivery through those

(Testimony of Lewis Michael Larson.)

four pipes and the final closing at the top in a period, as I remember, of twelve days; and I also recall distinctly that the last few yards were poured in a very heavy downpour of rain, at the beginning of the rainy season. We just got out in time. The reason for having to change our method of pouring was due to the fact that the structure could not stand without the core in there for support, because the plan that I had indicated in my estimate for pouring could not be used, because you could not get your forms in; the forms traveling on a carrier would be obstructed from getting in by the core having to be left in position. In my thought on the estimate it did not occur to me that the condition of the ground was such as it developed to be. I was looking for self-supporting ground. We were always hoping that would be found. When the completion of the pouring was done we received orders from the District that the core must not be removed until the concrete had reached a stage of curing for 21 days after placing; consequently, having the drift full of timber, and requiring the core for support, it was impossible to carry on with the excavation without first removing the stulls and the supports that were holding the forms. I should state in that connection, too, in the pouring of the north tunnel, where we had developed that terrific pressure from the left-hand side, that we had as many as three stulls of 4 by 4 on that little short 5-foot-3 segment to the core to prevent that terrific weight

(Testimony of Lewis Michael Larson.)

from crushing in, and in spite of that some of our segments moved in as much as ten inches and we had [629] to trim back of the double row of stulls; it was both tedious and difficult, and when we did pour the concrete we had to bring the concrete up to the point where it practically enclosed these stulls before we were compelled to get it out and when we did get it out it would twang like a violin string or a guitar string, showing the terrific pressure that we were carrying. That practically completed our operations in that tunnel.

Q. Was any of the ground encountered in this section of the tunnel self-supporting?

A. Decidedly not.

Q. I think you stated you started the excavation of this section of the tunnel about August 28, 1934?

A. On the south tunnel that is as near as I can recall the date; on the north tunnel on September 1.

Q. Do you recall when the excavation was completed in the south tunnel?

A. I think the excavation was completed in the south tunnel approximately on October 13, as I recall it now.

Q. 1934?

A. 1934; and the concreting requiring 20 days, would be about the 5th of September, would it not?

Mr. Tinning: Q. November.

A. November.

Mr. Marrin: Q. In the time between the placing of the timbers in the drift and the commence-

(Testimony of Lewis Michael Larson.)

ment of the concreting operation, had the timbers moved any?

A. Yes, they were moving in continuously in spite of the fact that we tried to hold them with stulls.

Q. And had to be trimmed before the concrete could be poured?

A. And had to be trimmed before concrete could be poured, most of them.

Q. These timbers had only been in a short time before concrete was placed? A. Yes.

Q. How large were these drifts?

A. The lower drift, as I recall it now, was about 9 feet high and about 10 feet wide. [630] The reason for making it of that size was it was developed that we might have to go more than the 40 feet, and consequently we would have to find some means of taking the muck out, and taking the muck with small cars was not possible; consequently, as a matter of getting 5-yard cars in there, and no smaller drift could be used for getting 5-yard cars. The other drifts were confined to the size that would be necessary to put the concrete forms in, the purpose being to leave as much of the cheap muck as we could in the core, and consequently that reduced the size of the drift, and to get the muck out of the drift into cars is a more costly operation, because that has to be done by hand, than it is to do the operation by power equipment.

(Testimony of Lewis Michael Larson.)

Q. Did the ground condition have anything to do with the size of the drift? A. Yes.

Q. What?

A. The ground condition controlled the size of the drift. The lower drift that I mentioned was made to a certain size for core surface but the rest of the surface used from 7 foot segments to 5 foot 3 segments and wall plate in there at the contact between all of the segments to aid along with the collar braces in keeping the structure as a unit; consequently, we had two additional drifts in each of the tunnels over what we had contemplated, and we had spacing of timbers at four feet instead of five feet, and we had wall plates extra, and every time we put in a segment that would have to be taken to the mill, because it had to be framed fanned, you have extra collar braces to cut, the wall plates have to be cut, you have many more boards to be handled, and it all adds to the cost, not only in the material, but it adds to the cost in time and the cost in money.

Q. Would you describe generally the character of the material in this section of the tunnel as it appeared to you?

A. In the [631] south tunnel it was broken formation, apparently sandstone, that is what I thought it to be; I am not a geologist. The fact that I name it something, it does not follow that I am right in naming it; that broken formation continued except in the top drift—I think the geologists would call mud some form of rock, but I will call

(Testimony of Lewis Michael Larson.)

it mud—we ran into mud in the third drift of the south tunnel, and the fourth drift of both sides of the tunnel; this refers to the south tunnel—and in the fifth, two fifth drifts and the top drift. In the north tunnel, I should mention that on account of the broken condition there it was necessary to advance spiling; it was not necessary to drive spiling except in the mud section; you cannot drive spiling in rock, you have to advance it.

Q. Did you do any breastboarding in that section?

A. In the south tunnel we breastboarded in the third drift and some in the fourth drift on the right-hand side, and on the fifth drift on the right-hand side, but on the left-hand side there was very little breastboarding because the mud was stiffer there, the water from above that I spoke of in the earlier part of my testimony yesterday, from this stream, a little creek that flowed down into the approach cut—however, we had cured that, or thought we had, but during the period of time that it had been going there it had caused disintegration of the material and that continued up to the point where we left off 92 feet in from the portal. Now, in the north tunnel the material was very badly broken, I think was a sandstone, but the same method had to be pursued, except that breastboarding was not necessary in that tunnel, but we had to be very careful advancing our spiling in that tunnel to prevent the material running away, and in

(Testimony of Lewis Michael Larson.)

one instance it did get away from us, not because of the condition of the material [632] as much as because we did not have experienced people who were working in the tunnel; I don't know what their vocation was, and it was a very dangerous condition, because the lives of the men depended upon the understanding of the operation by experienced help, and we had so little of it.

Q. Did the fact that you were required to place concrete first in one wall of the tunnel and then go over and place it in the other wall have any tendency to cause cold joints to form?

A. Yes, it did.

Q. Will you explain what is meant by "cold joints," first?

A. The concrete is supposed not to be continuously poured without a key being placed in it after it had been in the form for a period of thirty minutes; after that you think of it as a cold contact, and it was found impossible to transfer our pouring operation from one side to the other in that period; in fact, in one case I remember keeping time on it, and it took more than an hour and a half to get over on the other side; it was a very difficult and very slow operation.

The Court: We will take an adjournment now until tomorrow morning at ten o'clock.

(An adjournment was here taken until tomorrow, Friday, April 15, 1938, at ten o'clock a. m.)

[633]

Friday, April 15, 1938;
10:00 o'clock A. M.

LEWIS MICHAEL LARSON,

recalled for the plaintiff.

Direct Examination (continued)

Mr. Marrin: Q. Mr. Larson, you testified, yesterday, that the method you planned for concreting the tunnel was to use the pneumatic gun which you described. At the time you made your estimate, did you consider any other means of applying the concrete lining in the tunnel? A. I did.

Q. What method did you consider?

A. The method known as the "Pumpcrete."

Q. Would you describe briefly what that method is, and how it differs from the pneumatic gun?

A. This method, your Honor, is illustrated on the upper half of Exhibit 35. The forms are similar to the forms used, and the form carrier is similar to the form carrier used in the other method. The concrete is brought in, in much the same manner. It can be brought in, either in cars or in agitators. In this instance, it was brought in in agitators; the concrete comes in there, and is dumped into the pumpcrete outfit; and the pumpcrete outfit handles the concrete in a way different from the pneumatic gun,—for example, dispels it out at a violent force. In the pumpcrete, it is pumped the same as water. It is put into the pumpcrete gun, which has, in some cases, one cylinder, and in some cases, two cylinders.

(Testimony of Lewis Michael Larson.)

It is a safe method, because men can work in and about it without any difficulty.

At the time that the estimate was made up, this method had been in the experimental stage, having been tried out at the Boulder Canyon; and Mr. Stephen Bechtel, the president of the Six Companies, then of the W. A. Bechtel Company only, asked me if I had given it [634] consideration. I told him I had been hearing a great deal about it, but I did not understand that it had yet proven feasible. He suggested I get in touch with the Link Belt Company.

Mr. Marrin: The Chain Belt Company, isn't it?

The Witness: The Chain Belt Company—who were the agents for that method in the Western country. I called them up, and they sent over Mr. Nichols. This was some time—probably about the 10th day of March; that is as near as I recall the time.

Mr. Tinning: Don't you think, Mr. Marrin, this testimony should go in without hearsay as a result of this witness's investigation?

Mr. Marrin: Yes, I think so.

Q. Mr. Larson, you might simply testify to your investigation—that you investigated it, and why you did not adopt that method in your estimate, without saying the conversations with third persons?

A. The result of that conversation was—he told me—although there had been progress made in its

(Testimony of Lewis Michael Larson.)

use, and it was about the time when the bid must be put in, I was afraid to use that as the controlling unit in my bid; resulting in my adopting the pneumatic gun, which was in general use for tunnel work and the accepted practice up to that time.

Q. I think that covers it. You were describing yesterday, the excavation of the first 92 feet in the south tunnel and the first 110 feet in the north tunnel. You said the length of time that was included in your estimate for the excavating of those tunnels was what?

A. The first 40 feet, I had estimated to use 20 days for the excavation. By that time, the crews would be lined out and separated sufficiently far that it would be a going operation without interference from one part of the work to the other.

Mr. Tinning: Q. Mr. Larson, how many days did you say?

A. 20 days for the first 40 feet. In the drift system, I proposed, at that [635] time, to continue on with the wall plate method,—change to the wall plate method, and proceed with the excavating while the concreting was being done. My thought, then, of course, was that I could remove the core, and move this concreting unit into the tunnel and pour from steel forms. I had in mind, at that time, pouring the first distance of 40 feet from the outside of the tunnel, working from the 40 foot point in, and work toward the portal. By the time that was poured, I appreciated that my estimate of progress was right

(Testimony of Lewis Michael Larson.)

and would be a considerable distance ahead of the excavation, on the wall plate method, and would be in good time for lining, by putting my ramp between the face that was being excavated and between the forms. It was necessary, under that method, to have some means of backing up, to follow your excavating and also to fill from the previously poured concrete, back to a new bulkhead. That would have given me ample time, after the concreting had been done for the first section, to make those changes; and I could then proceed, if my estimates were right, both in progress of excavation and progress of pouring, an average of 10 feet per day of concrete; an average of 10 feet per day of concrete would be poured, to keep up with an estimated excavation of 10 feet. I required 92 feet of excavation in the south tunnel, instead of the estimated 40, on account of the nature of the ground; and the period of time on the schedule would have required 26 days for excavation, and, as a matter of fact, it took, I think, 60 days, or 62. The north tunnel,—the distance being a little farther in,—would have taken us, if the schedule had been kept up at the rate I figured—we would have had that done in 27 days; and, as a matter of fact, it took us something over 60 days—67—I have forgotten the correct time. I have my notes here, if I may refer to them.

Q. Were those notes taken from the records?

A. Yes. [636]

Mr. Marrin: Is there any objection to the notes?

(Testimony of Lewis Michael Larson.)

Mr. Tinning: No; we have no objection.

The Witness: A. —The record shows that the excavation, in the south tunnel, begun August 23rd, was completed October 13th. Allowing for the holiday of Labor Day, it meant 51 days. The core removal, from November 26th to December 8th,—an additional period of 13 days,—meant the requirement of a total of 64 days for this 92 foot excavation, the estimated time being 26 days,—a time loss of 38 days.

In the north tunnel, the excavation, begun September 1st,—as soon as we could get in,—was completed on October 27th; a total of 56 days; the core removal required 8 days; making a total time period of 64 days, as against an estimated period of 27 days, or a time loss of 37 days.

Mr. Marrin: Q. How many hours a day did it allow the plaintiff working?

A. On this work, it was forced 24 hours a day, every day that was not a legal holiday.

Q. During all the time you were on the work, was it going on for 24 hours a day?

A. With all the vigor we could give it, it was.

Q. After the lapse of 21 days, to allow the concrete in this first portion of the tunnel to cure, was excavating resumed?

A. As soon as the 21-day period was lapsed, excavation was begun in the south tunnel, which was the one that had been first concreted. Excava-

(Testimony of Lewis Michael Larson.)

tion was resumed on the core on the 26th day of November, according to the records.

Q. According to your estimate, Mr. Larson, and the date that excavating was resumed on these tunnels, how far would they have been excavated, had you been able to follow your estimate?

A. Well, I will refer to my notes again. The distance we should have been on December 12th, in each tunnel, was 1030 feet, if there had been no [637] delay, and had gone on as we anticipated.

Q. Mr. Larson, will you proceed to describe the excavation of the tunnels, from the point where you resumed excavation in December?—I might ask you, preliminarily: Were you in charge of both tunnels?

A. I was in charge of both tunnels up until December 8th.

Mr. Tinning: Q. Was that December 8, 1934?

A. Yes; this is all 1934.

Mr. Marrin: Q. After that date, what particular work were you in charge of?

A. I was then in control of the north tunnel; and Mr. Whitmire was placed in charge of the south tunnel.

Q. By being in control, you mean you superintended the work?

A. Yes, I superintended the work.

Q. During the period you were in charge of construction of the north tunnel, did you frequently visit the south tunnel?

(Testimony of Lewis Michael Larson.)

A. On an average of about three times a week.

Q. You were familiar with all of the conditions in connection with the excavation of that tunnel during that period?

A. I think I was thoroughly familiar with that.

Q. Will you proceed to describe the method of operation on the north tunnel, between the period when excavation was resumed and until you left the work on April 30, 1935?

A. As I previously stated, I had the core excavated, and brought it to the point very near the end furthest removed from the portal,—the end of the lining. The ground was in such condition that it was not safe to complete the excavation in a vertical position. I brought it to the end of the lining. I breastboarded the core, to prevent the slippage of material,—the rocks. After breastboarding, I began the excavation of the two drifts I described above, on the wall plate drifts on each side; and, at the same time, I began the excavation of the top drift; and, in excavating the top drift, because of the condition of [638] the ground, it was necessary to give support to the top. In ground that is heavy and uncertain and carrying weight, you have to raise your cap, corresponding in proportion to your results as to the weight you are carrying on the cap. For that reason, the top drift is driven, to prevent the ground from running into the drift; and also to give the necessary elevation to the segments that come up from the wall plate. When I

(Testimony of Lewis Michael Larson.)

had proceeded in a distance of about 20 feet, on the wall plate drift, a similar distance on the top drift, I proceeded to put the wall plate in position. I am a little ahead of my story. It should be stated: when I was in about 20 feet in the wall plate on the top drift, I then had to excavate this second drift immediately above the wall plate drift, continuing the other operations described in the two drifts next and in the top drift, and providing for the safety to the men who were working below. When those drifts immediately above the wall plate drift were advanced about 20 feet, I started another crew on the connecting drift with the top drift, and then went on with concreting and more excavation. These, of course, were duplicated on each side of the tunnel. When all the crews reached a point 20 feet in from the erected section and the timbers forming the arch had been erected, and the complete arch formed there, and the collar bracing, and all that is necessary to hold a structure in a firm condition, had been finished, I removed the breast-boards from the core, and began, with the power unit, to excavate the core. It is necessary you do that in order to get bracing under the suspended wall plates. We had removed possibly three or four cars of muck, with a shovel, when the core broke; and, as it sloughed down into the tunnel, it broke to a point where our arch approximately had ended. That was a fortunate point, because, had it carried further, it would have caused a collapse. As it was,

(Testimony of Lewis Michael Larson.)

no harm came from it; but it was evidence that it [639] was an unsafe distance, and, consequently, I stopped the excavating of the core, and proceeded to drive the wall plate and the remaining drifts for the wall plate in for a distance of another 10 or 20 feet; and I resumed excavating on the core again, but the core was in such condition that it was unsafe to remove it, as a unit, without some spiling. I started at the meeting point of the core and the wall plate, and began drifting down, in a vertical position, from the wall plate. As I did so, I breastboarded under the wall plate again. On the wall plate drift excavation, I placed spiling back of the concrete section, lining section, and breastboarded against the core. If I had not done that, the core would have collapsed, or the material from the drift would have collapsed and trapped the men who were working there. I had to carry the excavation clear on down to the point where I could put in any posts. I tried to carry about 4 foot spacings, when I contemplated 5 foot spacings would be possible, when I made the excavation to a point under the free end of the wall plate, and put in one 4 foot spacing against the breastboard that had held the material immediately under the wall plate and against the wall plate drift.

Q. The posts are for support under the wall plate?

A. For support under the wall plate, yes. They carry from the wall plate down to the subgrade.

(Testimony of Lewis Michael Larson.)

The timbers forming the spacing, at this particular time, were 12 inches by 12 inches. As I proceeded to excavate for the next section in the same manner, the weight began to become so heavy on the wall plates that I had to drop back and put in more posts, in a spacing of 3 feet that existed between the first and second posts; and finally had to make a solid back there. As quickly as I could put the posts in, the pressure from the top and from the sides had the tendency to force this in; and I proceeded, from then on, for a distance of 20 feet, putting the posts in almost solid. When I reached that point, the wall plate began [640] to pulverize, from the weight; and I had to drill holes through the wall plate, and bolt the wall plate in, so it would not fracture. It convinced me of one thing: that we were going to run into a condition, or we might run into a condition, whereby the wall plate would be too light. I changed the wall plate from 12 by 12 to 14 inches by 14 inches. The danger of the material running away from under the wall plate is apparent if the wall plate is not supported; and that is the reason for enlarging the wall plate.

This method that I have described was carried on and the material that was encountered was a broken material that I interpreted as sandstone. It would not stand without support. When I got a distance in, as I recall now, about between 150 feet and 200 feet from the portal, I ran into a laminated formation—that is another word,—being inexperi-

(Testimony of Lewis Michael Larson.)

enced in geology,—for chert. The laminations offered a little resistance, but, after I penetrated further in, they began to pulverize, and finally offered no resistance at all and contained a little water that tended to run in under, and had to be removed from the breastboard; and we had to be very careful, in advancing the spiling, to see no material or rock formed a cavity. In entering the posts, we had to be very careful in excavating down at a distance not to exceed 4 feet, the material under the wall plate board and the breastboard against the core, and the spiling and the outside wall of the tunnel, and then the post would be entered. Then it was excavated, with the power shovel, a distance of about 4 feet. The muck that comes from the upper drift is dropped down into the lower drift, where it then is picked up and hauled out and dumped where the power shovel can pick it up. There was a little difficulty in that, because of men working directly nearby, and we had to erect scaffolding for those men, to prevent any material falling off from that transportation medium [641] onto the men working below.

After running through possibly 20 feet of this laminated material, I ran into what I thought, and still believe, was a sandstone. It offered a little better resistance than the laminated material had, but it was anything but self-sustaining. It would not support itself, and I had to offer the same support to that that I did on the other material; but, as I

(Testimony of Lewis Michael Larson.)

advanced into that, it began to become less firm. I had perhaps penetrated it for 20 feet when I ran into some more of this laminated material in a less substantial form than the preceding; that was: it was more broken, and, as I recall it now, at around Station 114,—which would be 114 plus 00,— I think is the proper way to describe it—it was a completely pulverized mass.

Mr. Tinning: Q. Would you mind my interrupting you, Mr. Larson. You have given us a station, as 114; 114 plus 00. That was before you ran out of the 20 feet that you thought was offering some resistance and came into that broken material, was it?

A. I first ran into one section of this laminated material for about 20 feet. Then I ran into about 20 feet of the sandstone; and then I reentered this stuff I am speaking of, that was so badly pulverized.

Q. When you ran into that laminated material, was that about 40 feet towards the west portal from Station 114 plus 00?

A. Well, it would be about 60 feet, I should say, where I first entered it. Then I ran for 20 feet, and then the sandstone for 20 feet; then the pulverized material. I am giving you it approximately. The pulverized material of this second laminated section, where it began to run out and enter that sandstone again. In this case, it was also 20 feet—If you take 20 feet, 114 plus 00,—that would be 113 plus 80; subtract 20 feet from 113 plus 80, and

(Testimony of Lewis Michael Larson.)

you have 113 plus 60. That was the end of the first laminated section; and 20 feet from 113 plus 60, that would be about the first contact point of the laminated material. [642]

Mr. Marrin: Will you proceed, Mr. Larson? Would it help you in giving these stations to have this poster back?

A. It might. It will help in this, that I can illustrate to the Court what I mean.

Q. The witness is now referring to Plaintiff's Exhibit 42.

A. The cross section legend by the letter "B". The breastboarding, your Honor, to which I referred, is indicated by the cross pieces. There are stulls running against the core in the direction of the drive that are not in evidence here, and the spiling shown on the outside of the post.

Q. Did your estimate contemplate having to do that breastboarding and spiling in the wall plate section?

A. Not at all. In the wall plate section when you use the wall plate method, it is ground where you expect that when you drive your wall plating you can excavate with a power shovel, by using material for blasting, that is, dynamite, to break your rock and put up your posts under your wall plate. That is generally the thought in construction, and it was my thought in this instance. My thought in this instance was I could go in with these two wall plate drifts on each side, take the drifts immediately

(Testimony of Lewis Michael Larson.)

above them and let that material fall by gravity into the lower drift, and then the next drift above that let the material fall by gravity into the lower drift, and then the top drift, and let the rest of the material fall by gravity, but after I found the conditions that prevailed there it was imperative that I start the top drift and wheelbarrow that material out of the top drift and then drop it down into the lower drift. It was necessary to raise and lower the caps which necessitated the framing out in the yard of the closing segment that was between the top drift and the drift immediately above the wall plate drift; one end only could be framed and the other one cut to length to fit. [643]

Q. Will you proceed with your explanation of the character of the ground and the excavation method at the point where Mr. Tinning asked you that question?

A. About Station 114 plus 00, as I now recall it, I encountered a sandstone that offered a little better resistance than the previous sandstone, but it was broken and fractured. As I proceeded with the excavation it became more broken—I do not recall the station definitely where it needed side support, but I think it was about 30 feet, possibly 114 plus 30, that the pressure on the segments—I will describe that to your Honor so that it will be understood more clearly; the pressure on the segment at the meeting point——

(Testimony of Lewis Michael Larson.)

Q. The witness is referring to Plaintiff's Exhibit 42 and the type B section.

A. At the meeting point of the segment off from the wall plate and the segment immediately above it, the angle was very nearly a straight line, that is, it offered very little resistance; the radius that forms that curve is something over 27 feet long, if I recall, 27 feet 2 inches, which means a very flat curve, and when we tried putting timber up there we had very little resistance at that point. This weight that I have mentioned that came from the crevice on the north side of the north tunnel, and which weight I felt all the way through, and where I had so much trouble holding the ground when I was concreting continually on that left-hand side; it continued, as a matter of fact, with more or less severity until I reached the station, as I recall now, 115 plus 60 or thereabouts; the weight became so heavy at this point, which would be Station 114 plus 30, that I had to put some very heavy timbers from these two segments down to the wall plates on the opposite side of the tunnel in order to prevent collapse.

I forgot one thing, when we entered the excavation after [644] concreting I had a batch of posts, that was almost a solid mass of timber in that first 20 feet; the pressure was so heavy at that point that I had to carry timbers across from one wall plate to the other in order to prevent collapse. Now, the weight registered more at this particular point 114 plus 30, approximately; the weight regis-

(Testimony of Lewis Michael Larson.)

tered at the angle between the segment, which is the wall plate segment, to the segment immediately above it, and it was there that I had to support. As I advanced with these segments the material seemed to stiffen a little bit, the rocks became a little firmer, and I had advanced possibly another 60 feet, which would make the station about 114 plus 90, when I began to take courage from the stiffening of the rock, I placed a hurry-up order for the drill carrier, always looking for that self-supporting ground, and believing that we would find it; I thought here was a continuing stiffening of the ground for about 60 feet, and we were entering into this formation that the geologist had indicated might be found. I stopped all drift excavation to go into the economic open face method, which would allow me to shrink my excavation by at least a foot, so we save expense of concrete, save me timbering for protection of the men, re-using my timbers after I had taken them out over and over again until they were worn out; it was all an economic move. I penetrated that material for a distance of 12 feet and then proceeded cautiously, because I saw there was a softening, going on for another distance of about eight or ten feet, as I recall it, when suddenly a big block of material containing about 12 yards, 10 or 12 yards, dropped out from the roof. It showed that I could not carry on with a full face method. The drill carriage in the meantime had arrived, and I continued the erection of the drill

(Testimony of Lewis Michael Larson.)

carriage, thinking that that was possibly just a little fault line, and I would soon pass into the firm material. I was [645] not discouraged, but expected I would get to the firm material; it was necessary to go back to the wall plate method for the safety of the men and safety of the structure. I proceeded again to reopen my drift, and by that time two weeks had been lost. I should mention, too, that in the beginning of the excavation, after the concrete lining was put in, it takes two weeks at least to run your crews out and get them gathered so that they won't interfere with other following operations; whenever you change your operations you have to figure about two weeks loss, which was the result in this instance, by the time I got the crews all lined up again and properly faced the material, the pressure that I had felt on the left-hand side of the tunnel I now felt over the top, and it ran across the tunnel at possibly 45 degrees, or approximately that, taking somewhere between 60 and 80 feet in crossing, and the pressure then began to register at the same point between segment A and segment B, over the right-hand side of the tunnel.

Mr. Tinning: Q. Will you give us the station, approximately?

A. I think this is about Station 116; possibly it would be about the center of it.

Mr. Marrin: It is understood, Mr. Tinning, he is giving these from recollection, and they are approximate.

(Testimony of Lewis Michael Larson.)

A. Yes, from my recollection of four years back; it is not easy to recall an exact location. I had found, at least I concluded that my greatest danger lay beyond the contact point of A and B segments. To accomplish two purposes I transferred my wall plate up to that point; and when you have a long wall plate in and you have a number of sets carried onto that wall plate, you have an outward thrust from the mere formation of your arch on that wall plate; that had a tendency to stiffen that very weak point; it had another virtue, it assured me of cheap material in the core. [646] The fewer drifts the cheaper your material is, the better progress you can make under average conditions, the more money you can make and the more money you can save.

Q. When you say you transferred the wall plate to that point you were pointing to type C legend on plaintiff's Exhibit 42, and you pointed to the fact that you transferred the wall plate to a higher point?

A. Yes, from the top of the post to the top of the segment that had formerly rested on the wall plate. Now, the pressure became so heavy at that point that in spite of that cautiously moving the wall plate began to cave, and I had to put stulls across from the new position of the wall plate, from one wall plate to the other.

Q. Did you carry the original wall plate also in that?

(Testimony of Lewis Michael Larson.)

A. No, I did not. I then carried it as an independent set up to the wall plate, that is, I placed it upon the former post of the segment that had formerly rested on the wall plate, and the top of that segment was a support for the new wall plate. The work had not advanced very far until the timbers in this weakened portion began to come down pretty rapidly. I had to suspend operations in that place and send men back to retimbering; some of the timbers had gone down 12 inches into the concrete line. I began a complete retimbering operation and placed in an almost solid timbering over the arch, which I thought would be sufficient to hold it, but I could not hold it that way. It still threatened to break through the timber, so I had to erect from the wall plate to the top segment upon each side an A frame support underneath the wall plate. I had to take the stulls from one side of the segment to the other side to prevent collapse.

Q. Will you explain what you mean by an A frame? A. A A frame—

Q. Do you want to draw it on the board?

A. I think possibly it [647] would be a little clearer if it could be visualized than explained.

Q. Perhaps you can simply draw it in here, just a line to show the Court what you mean by an A frame.

A. Well, assuming this to be the wall plate on this side, and this to be the top segment, the A frame support requires the placing of another timber under the cap, here, and carrying a direct leg

(Testimony of Lewis Michael Larson.)

down to the wall plate from each side, which took the support inside of the concrete but it was the only thing that could be done to prevent collapse, and then the timbers that I talked about carried across, the stulls across, they were carried across about an elevation of 4 to 6 feet below the top segment. That describes it. I again proceeded with the excavation and I started a drift operation again. As I did so I ran into a more broken mass, much of the rock about the size of my hand, but it was firm and hard, but there was considerable water in it. Later on that spread from the wall plate drift up to the top drift and it appeared it was finally going to cover the whole tunnel. This was the condition of the tunnel when I left work on April 30th.

Q. You said the ground was firm and hard. Do you mean self-supporting?

A. No, it was very much the reverse. It was just a mass of loose rock, fractured, broken.

Q. Now, will you point out on Plaintiff's Exhibit 42 the point to which you were in charge of the excavation of the north tunnel?

A. I was in charge of the excavation in the north tunnel to the point indicated here by the legend "B", which was an average tunnel distance in of 530 feet.

Q. From the west portal?

A. From the west portal.

Q. That is at station approximately 115 plus 60?

A. Thereabouts, yes.

(Testimony of Lewis Michael Larson.)

Q. Now, Mr. Larson, I will ask you was any of the ground encountered by you in the north tunnel self-supporting?

A. No, except possibly 12 feet, the 12 feet that I referred to when I took courage and ordered [648] the drill carrier.

Q. And tried the full face method?

A. And tried the full face method.

Q. Will you describe the method of excavation and the ground condition encountered in the south tunnel during the period up to April 30, 1935?

A. Yes. The method shown on Exhibit 42 cross section marked "E" was the method that was taken up by Mr. Whitmire; I had started the top drift; he carried that on because there was a mud patch in there, and it was evident in the drift when I discontinued the drift in 92 feet that the mud was rising and that we would probably soon be out of it; consequently the top drift was put in there to control that mud patch, and as I recall it now it was carried for a distance of about 40 feet when the mud ran out. Mr. Whitmire then carried on with the one drift to the top of the plate, to the location of the wall plate on each side of the tunnel for a distance of about 42 feet as I recall it now; that would be about 112 plus 85, approximately.

Mr. Tinning: That was what, when you say one drift—was it on each side?

A. On each side of the tunnel, one that was advanced to the point where men could work without

(Testimony of Lewis Michael Larson.)

danger from the operations above. Mr. Whitmire began to take out the ring, that is the section between the wall plate and the top drift; he used a different method from the one that I used. He allowed that material to drop down into the lower drift, and he had a power unit that he termed a Bagley, it is a scraper that is propelled ahead by a double drum hoist, one block for the line to run through fastened at an advanced position; when one hoist is applied it pulls the scraper or dragline into the drift; when the other hoist is applied, that is, the power is applied to the hoist, it has the reverse action of pulling this scraper out with the material. This material then was hauled out to the toe of the core [649] where a power shovel picked it up and loaded it into cars. He found it advisable to change the method on account of the ground conditions. This little firmness that I encountered when I was in 92 feet, of course, had given us the indication and belief that we would find self-supporting ground at that point. We were disappointed.

Q. Mr. Larson, that Bagley drift started at 92 feet, and where did it end?

A. At about plus 82, but the Bagley method was continued for many hundreds of feet beyond that, or at station approximately 112 plus 82, Mr. Whitmire changed the method of operation as indicated by the legend F.

Mr. Marrin: On Plaintiff's Exhibit 42?

(Testimony of Lewis Michael Larson.)

A. On Plaintiff's Exhibit 42, yes. That method was pursued by him during the period of time that I remained in the tunnel, and observed the excavation, and it consisted of running a lower drift at sub-grade or approximately sub-grade elevation, on each side of the tunnel, followed by a drift immediately above that, also on each side of the tunnel, which material was dropped down into the lower drift and removed by this Bagley process that I have described. When the advance was sufficiently forward that he could put up the timber for the ring, that would be posts for the ring, he would begin on the ring, excavate it as one unit; that is, work both ways, drop the material down into this lower drift and continuing the removal by this Bagley. As this excavation of the ring was accomplished he left the core in for removal by power shovel after the ring had been carefully timbered; he used additional timbers; I used a seven-ring arch, he used a nine. That was about the departure of the method in regard to the support of the arch. When he had gone in possibly, as I recall it now, 400 feet, it might be more or less, he lost the lower drift; and he encountered a formation which appeared to be cherts. I defined it [650] for him as cherts. The material ran in with the water.

Mr. Tinning: What station?

A. I would estimate that at about probably 116.

Q. And upon which side?

A. On the lower drift on the left-hand side.

(Testimony of Lewis Michael Larson.)

Q. That would be the north drift?

A. That would be the north drift of the south tunnel; he carried a second drift over that, so that it would give him room to place the support against the side wall to prevent any further material running into the drift and when that was accomplished he resumed the excavation as heretofore on the lower drift, followed by the second drift, and continued to do that in that manner during the time when I was in the tunnel.

Mr. Marrin: Q. What was the character of the ground encountered by Mr. Whitmire during that period in the south tunnel?

A. My judgment was that it was a little firmer than the ground in the north tunnel, but it had more water.

Q. Was it self-supporting?

A. There was none self-supporting in the tunnel; there was no self-supporting ground in either tunnel during the period that I was there except the 12 feet that I mentioned in the north tunnel.

Q. To what point had Mr. Whitmire carried his excavation at the time you left the work on April 30?

A. He had carried it 618 feet of average tunnel. By that I mean taking the yardage of the several drifts and coring and ring, adding them together and dividing them by 35.61, which was the neat excavation for the tunnel, that gave him the distance 618 feet in and gave me the distance of 530 feet in.

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: Q. Would you give us the station?

A. 618 added to 111 plus 53 and on the north tunnel 530 added to the [651] station 111 plus 42.

Mr. Marrin: Mr. Larson, I show you a photograph which is entitled "Inside of the tunnel West Portal May 1, 1935, Type B," and ask you if you can tell me what that represents?

A. That represents the material in the tunnel at the time I left the work.

Q. And the condition of the timbering?

A. And the condition of the timbering at that point.

Mr. Tinning: I suppose, to make the record clear, you are referring to the north tunnel?

A. Pardon me, it was the north tunnel.

Q. The tunnel of which you were tunnel superintendent? A. That is correct.

Mr. Marrin: I offer that in evidence.

(The photograph was marked "Plaintiff's Exhibit 43.")

[Set forth in the Book of Exhibits at page 279.]

Q. You said you left the work on April 30, 1935. Were you again employed by the plaintiff in connection with this work? A. I was.

Q. When were you employed?

A. On August 29 I was called in—

Q. August 29, 1935?

A. Yes, August 29, 1935 I was first called in to a conference and asked to make an examination of the tunnel.

(Testimony of Lewis Michael Larson.)

Q. What had occurred in the tunnel at that time?

A. The tunnel had caved in, the north tunnel.

Q. What were you employed to do?

A. At that particular time I was employed to make an investigation and report on the condition. At a later time, on the 16th of September, I believe—

Q. 1935?

A. 1935, I was asked to come in and recover the tunnel at that point and concrete it and put it back into safe condition.

Q. By "recover," you mean you were asked to remove the caved-in [652] material and concrete?

A. Yes, and leave it in safe condition.

Q. At about what point or what engineering station, if you can give it in the north tunnel, had the cave-in occurred?

A. It apparently had centered around this station 114 plus 0, where that running material and badly broken material had occurred.

Q. Will you just describe briefly the appearance of the cave-in when you first arrived on the work?

A. When I first arrived on the work the material had filled the tunnel to an estimated distance at the bottom of about 130 feet; the timber was completely down for a distance of 57 feet and was more or less in a point of collapse for a distance of probably ten feet more on each side of the caved material. The material, itself, was mostly the pul-

(Testimony of Lewis Michael Larson.)

verized material that I had thought to be cherts; on the east end of the cave, where some of this sandstone that I mentioned we had encountered was down; one large block containing a great many yards, I don't know how many, had depressed the segment on the south side of the tunnel, and it was such a large block, that when work proceeded on recovery we had to take off little points of it and crawl under it instead of removing it as a mass. [653]

(After Recess.)

Mr. Marrin: Q. Mr. Larson, you stated, this morning, that you had excavated the tunnel to a certain point at approximately Station 116 in the north tunnel. Did you want to correct that testimony?

A. Yes. I have checked up on the stationing—530 feet added to 111 plus 42, I think, makes 116 plus 22; that is the average spacing.

Q. Did you excavate about to the point on Exhibit 42, as shown by the end Section "C"?

A. Correct.

Q. I would like to draw your attention to Plaintiff's Exhibit 31, one of the models. Does that illustrate the system that was used by Mr. Whitmire in the south tunnel?

A. Yes; according to legend "F" on Exhibit 42.

Q. Mr. Larson, will you proceed to explain how you removed the caved-in material from the north tunnel?

(Testimony of Lewis Michael Larson.)

A. I will use this,—one of the cross-sections here on Exhibit 42,—to illustrate a condition similar to the one that I used. It is indicated by cross-section "I" on Exhibit 42. I will explain to his Honor that the bodies had been found at about the location of the lower drift on the right-hand side.

Q. You mean by "bodies," the men who were killed in the cave-in?

A. Correct, yes; and the rescue crews had excavated in to the point where the bodies could be recovered. The work had stopped there; and, when I took charge of the recovery work, I placed crews on both ends of the caved-in material in both drifts, both lined drifts.

Q. Will you explain to the Judge how you had access to both ends of the caved-in material?

A. There are adits, your Honor, that go from one tunnel to the other, as indicated by the line at a distance approximately in 680 feet, apparently, from the west portal of the north tunnel.

The Court: Q. What is the distance across?

A. Approximately [654] 99 feet between the walls of the two tunnels.

Mr. Marrin: Q. An adit is a small tunnel connecting the two larger tunnels, is it?

A. Yes. In this case, it was 5 by 7 feet, approximately. That had been driven through prior to the accident, which gave the men the opportunity who otherwise would have been trapped in the forward part of the excavation which had been car-

(Testimony of Lewis Michael Larson.)

ried on to about Station 123 plus 40,—that is, about the face of the north tunnel,—at the time of the cave-in—which was, as a matter of fact, around Station 114 plus 00; that gave the men a chance to come out through that adit and through the south tunnel, and reach safety, and also made it a point in which men could go in again and resume work without being obstructed by the caved material. It gave me the opportunity to bring in men to attack this material from the east end, and other men in from the west end. I excavated the two lower drifts, as indicated, first; and then followed with the two drifts immediately above, and then two drifts immediately above the second drifts, or the third drift above subgrade. I carried that to an elevation of about 3 feet above the wall plate line. I should state, at this time, that the timbers had caved in for a distance of 57 feet. The posts and the wall plates had not come in, but were beginning to. The material evidently had come in so rapidly from the top that, before the side walls could collapse, the material had filled the tunnel and given support to these unsupported side timbers, the posts and the wall plates. My purpose in excavating to that point was to bind the wall plates in position and to further the development work to give me something definite on which to carry on my work. After the drifts had all been excavated through, I erected forms similar to those used in the first concreting of the two tunnels,—wooden forms, covered with

(Testimony of Lewis Michael Larson.)

metal. I erected the side walls, first, and [655] put a key in them, for the concrete to about a foot above the wall plates.

Mr. Tinning: Q. How high would that be?

A. That would be approximately 20 feet—between 19 and 20 feet. There, the usual construction key was put in, for concreting the arch later on. While that concreting was being carried on, with part of the crew, I drove that top drift over the loose muck. I should state this, in advance: that the remaining timbers that had not collapsed but were at the point of collapse, were all supported by posts that were carried from those timbers down to this fill material that had fallen in the tunnel; this fill material was all the time compacting; as it was compacting, the timbers from above that were weakened were falling down. It was necessary, realizing I would have to find new support on this settling core, or material that was in the tunnel, to drive my top drift higher, carrying it probably 2 feet above the outer concrete line. That was all going fast. Sometimes, I held it; and sometimes, I failed to hold it. The settling continued, of course, as it transmitted the weight onto the timbers and the top segments; and, in this case, I increased that top segment from 12 by 12 inches to 14 by 14. I worked crews from the sides, driving that top drift. It was necessary, of course, in this instance, to drive spiling all the way over the top and on each side, because it was just a pulverized mass,—just like sand. When the two drifts were through, the minute the

(Testimony of Lewis Michael Larson.)

walls had been poured through the caved material, I began then working crews—First of all, I poured a ring of concrete from these walls adjacent to the timbers that were down, and giving support to the timbers that were at the point of collapse. That prevented the cave from spreading. It was also a safety to the men who would continue in the work; and, from this new concrete ring that was about 6 to 10 feet in length, the [656] new concrete arch resting on the side walls—that had a length with the tunnel—the length of the new arch. When that was completed, I started crews at the top drift, driving spiling downward. The cap that held those, normally, rested on one set of posts that were transmitted down to the core, and then, in turn, some foot blocks that were wide enough not to be crushed into this loose material. The other end of the cap was inserted into the concrete; this, of course, all above what we term the "pay line of concrete"; that is the 2 foot point above the inner edge of the lining. I established the distance of approximately 6 feet. My purpose in that was: the new material could be very heavy; it was just a broken mass above me of undetermined height; I have never checked the distance, but it was lying in sort of a crater, and it had collapsed in that condition; but, of course, being so very badly pulverized, it had no means of supporting itself in that position. Then, working on both sides of the cave, driving the spiling on the side adjacent to the material and up over

(Testimony of Lewis Michael Larson.)

the cap until I reached the concreted wall on each side; and I then stopped and put in my form segment for the concrete; put in the reinforcing steel, and poured concrete in on this new ring of about 6 feet in length, measured along the tunnel line, with operations alternating on the west side, then to the east side. As soon as it had been poured, I started crews excavating another 6 foot section driving spiling from the top, and repeated that operation until I had pinched off all the material, and everything was resting on the concrete.

The Court: Q. After you repeated that operation, was there a cavity left?

A. The cavity was partly filled, your Honor, with material that had got to the line,—the tunnel line, at the top, apparently. The cavity was about 15 to 18 feet deep. When material that is broken,—whether it swells, or whatever it does,—it [657] does not contract itself—and it is possible this cavity, later on, might be deeper; but that is as near as I could estimate this: about 15 to 18 feet from the normal elevation of the material.

Mr. Tinning: Q. Mr. Larson, I don't know if I am clear—You are referring to that at the surface of the ground above where the slide occurred in the tunnel,—some distance up, there was an actual crater on the surface?

A. That is the point I am trying to bring out.

Q. That was the point that was about 15 feet?

A. Yes. That was my estimate.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. There was no cavity left inside the tunnel—

A. No. That remained in a compacted condition. The material that was in there when it filled the tunnel had remained in a compacted condition.

Q. After you had completed the section, did you then remove the caved material?

A. Yes; we were set to remove the core.

Mr. Tinning: Q. Remove the core, did you say?

A. The new core of loosened material.

Mr. Marrin: Q. Were you required to leave the forms of concrete for some time before the core was removed?

A. As I recall it, the last pour that we made,—I mean, the pour that closed the aperture,—was about 5 days. I may be mistaken in a day or so.

Q. When did you commence this operation of removing the caved-in material?

A. On the 15th day of September, as I recall it; and completed it about—

Q. 1935?

A. 1935; and completed it about the 6th of December. That is my guess. I might state something, to clarify the situation a little bit: that the posts were removed from the caps that [658] I have mentioned, by putting in rails, carried the rails—what we termed "balled" them in; that is, two rails, with the flanges and balls nesting together, would be carrying from the cap down to the forms supporting the concrete.

(Testimony of Lewis Michael Larson.)

After the concrete lining was poured, we would burn those rails off, so there would be no projection below the inner finish of the concrete line, and leave a smooth surface. [659]

Q. Mr. Larson, did the fact that the timber could not be removed from the section of the tunnel which you excavated before the concrete lining was placed affect the cost? A. Yes, quite materially.

Q. In what way?

Mr. Wittschen: Objected to as immaterial, and particularly in view of the witness' testimony that in the first 720 feet he did not intend to remove the timbering, and has testified that his own plan originally contemplated leaving the timber in the first 724 feet of tunnel.

Mr. Marrin: I think he would be entitled to answer, your Honor, as to the effect on the cost of removing the timber. It will appear later that a great portion of this tunnel where he contemplated removing the timber he was not able to do so.

Mr. Wittschen: He quit and left the job before he ever got beyond the point where he intended to leave it in right from the start.

Mr. Marrin: He is qualified as an expert to answer the question.

The Court: I will allow it in subject to the motion to strike.

Mr. Wittschen: Exception.

A. It affected it in the material cost of the timber, first, in the framing cost, the transportation

(Testimony of Lewis Michael Larson.)

cost, and the erection cost. In my experience in tunnel construction I know of no case where timber in place is as cheap as concrete in place; consequently, where you had to put in timber it increases your cost; even if you had the lowest class of timber, it increases the cost over concrete which otherwise might have been used.

Mr. Marrin: Q. Would it also increase the size of the excavation required? [660]

Mr. Wittschen: The same objection.

The Court: The same ruling.

Mr. Wittschen: Exception.

A. Yes, it does increase it, because the timber has to be outside of the outer edge of your concrete.

Mr. Marrin: Q. During the time that you were employed by the plaintiff was the work delayed in any way by the action of the plaintiff?

A. Not that I know of, no.

Q. What is your opinion about that?

A. That it was not.

Q. That it was or was not?

A. There was no delay on account of the plaintiff.

Q. Mr. Larson, during the time that you were employed by the plaintiff did the company, or any of its officers, ever refuse to give you all of the equipment needed in connection with the work?

Mr. Wittschen: Objected to as immaterial, irrelevant, and incompetent, and self-serving.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: If your Honor please, I want to show that Mr. Larson had full opportunity, full authority to get all the equipment and all of the men that he needed in prosecuting the work. There is going to be a question involved, if your Honor please, as to the time, it is going to be very material, and we are simply producing this testimony to show that we used every effort to complete this tunnel within the contract time.

Mr. Wittschen: May I observe on that, they took a contract to build a tunnel within a certain time and supply all of the labor and material, and presumably that was their responsibility, and whether he was refused equipment or not would not make any difference; if they could not get labor that would not bind the defendant.

Mr. Marrin: There is a provision that provides that if in [651] the judgment of the engineer the plaintiff was delayed for any cause beyond his control he is entitled to an extension of time, which judgment, in our opinion, must be exercised fairly and impartially in view of the circumstances.

The Court: I will let you make a record on it, as I have heretofore ruled. I will allow the testimony to go in subject to your motion to strike, and an exception.

Mr. Wittschen: Exception.

A. They did not. I had a call on any equipment that I might have use for.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. Were you allowed to employ all the labor you needed?

Mr. Wittschen: The same objection.

The Court: The same ruling.

Mr. Wittschen: Exception.

A. I was allowed to employ all of the labor, but much of it was not competent labor.

Mr. Wittschen: I ask that that go out. They chose the labor, that was their responsibility.

The Court: It goes out.

Mr. Marrin: Was the labor competent labor?

Mr. Wittschen: Objected to as immaterial.

The Court: Objection sustained.

Mr. Marrin: Q. Did the plaintiff direct you to expedite the work as much as possible?

Mr. Wittschen: Objected to as self-serving, and leading and suggestive.

The Court: Objection sustained.

Mr. Marrin: Note an exception.

Q. In your opinion, Mr. Larson, in excavating the portion of the [662] tunnel which you excavated did you employ the best construction methods under the circumstances?

Mr. Wittschen: Objected to as incompetent, irrelevant, and immaterial, and asking for the opinion of the witness upon a matter which is self-serving, as far as the plaintiff is concerned.

The Court: I will allow him to make a record on it. I will overrule the objection subject to a motion to strike out.

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: Exception.

A. I did the best I knew how.

Mr. Marrin: I should like to introduce in evidence for illustrative purposes the poster on the easel which has no legend, but it is being introduced for the purpose of illustrating the lines and grades necessary in the construction of tunnels in this manner.

The Court: Let it be marked.

Mr. Marrin: I offer it.

(The poster was marked "Plaintiff's Exhibit 44.")

The Court: What does that diagram depict? Explain that in your own way.

Mr. Marrin: Explain what it shows.

A. That depicts first the grades and lines that are necessary for the proper progress of the excavation of the tunnel.

The Court: Q. Just indicate for the purpose of the record what that discloses.

Mr. Marrin: The witness is referring to Plaintiff's Exhibit No. 44.

Q. Will you explain, Mr. Larson, the lines and grades necessary to be used in the excavation of this tunnel?

Mr. Tinning: This diagram appears to be a diagram of a drift.

Mr. Marrin: This shows how a tunnel has to be constructed by the drift method.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: You have some models that show, they are a large [663] size.

Mr. Marrin: We have a model showing the full face method we hoped to use, but the testimony in this case will show that the tunnel had to be excavated by the drift method because of the condition of the ground.

Mr. Tinning: There were drifts for driving ahead of the open face.

Mr. Marrin: In excavating a tunnel, where you have to use the drift system, as we will show and also prove through this witness, it is necessary to check the lines and grades in the drift at the forward portion of the drift.

Mr. Tinning: That is what I wanted to get a statement from you on, as to what you were proceeding on—this is a drift.

Mr. Marrin: Certainly, and that is where the lines are set.

Mr. Tinning: That is your contention, that that is where they should be set. You asked him as to the method of excavating a tunnel. This is one of the drifts in his tunnel. That is what the diagram is.

Mr. Marrin: Yes, that diagram is a diagram of a drift.

Mr. Tinning: That is what I wanted to make clear for the record.

A. This illustrates, your Honor—

(Testimony of Lewis Michael Larson.)

Mr. Marrin: The witness is referring to Plaintiff's Exhibit No. 44.

A. (Continuing)—just one operation of a drift. There are several drifts and in each instance something similar would be necessary for line and grade. If it is considered a drift down below the wall plate something similar would have to be used so as to give its location. It covers, in a general way, what is required in the location of a tunnel by the drift system. In [664] order to make it clear, the men who are working excavating forward to get the right elevation or the right line, it is necessary that they have established in the immediate vicinity of their work lines from which they can get the distance in or out, lines which will give them the proper direction, grades that will give them the necessary elevation, so they will not go too high or too low. This section illustrates its need and the manner in which we generally use them in tunnel work. Now, often times a little movement of ground, the shooting of ground, if it offers resistance, where dynamite is necessary, a little displacement may cause misalignment of the lines that give direction, and consequently it is provided, and it is generally true, that you receive three lines, three points, so that in case one does not check with the other two that you can try to determine an approximate compromise or try to determine with other points further back which one of the lines may have been thrown out, and in that way give the workmen a

(Testimony of Lewis Michael Larson.)

chance to go ahead and excavate in the direction in which they should excavate; consequently we had points on what we term a cap where we can swing a weight that we term a plumb-bob; this plumb-bob may be a piece of rock. The line support may be a piece of wire or it may be a piece of twine, or anything else that will suspend and allow the line to suspend in a vertical position. These points are entirely necessary for the progress of the work, as I stated. The grades for the same reason. These grades are generally placed at the request of the superintendent in some position where they will be protected and we can pick up from and get the right elevation for setting our foot blocks for our posts, whether it be on the right-hand side or the left-hand side. I say in a protected position, because in the operations of the work, shooting and one thing or another, you may destroy them [665] if they are not placed there; if they are placed at some point by some means where they cannot be disturbed unless something of a major nature happens, they can be driven in by some form of spike like they use on a railroad track, only there is a little spike driven in the side of the post. That elevation is indicated by the engineer at the request of the superintendent at a certain distance above the foot block; that means 2 feet, 3 feet, 4 feet, or whatever in the judgment of the superintendent is the proper elevation. From that distance measured down we determine the elevation of the

(Testimony of Lewis Michael Larson.)

foot block; the posts are generally cut to an established length, and if you place the grade at the right elevation your cut is going to be at the right elevation. From the suspended line you get the distance out you must go in order to get your timber line and tunnel in the right direction. That illustrates only one of the operations. If you have 13 drifts you have to have that operation in 13, possibly, unless you can suspend your line down to one of the lower drifts. But that is something that we have to have every day in order to keep checking that there has not been a shift in the line, something that has to be run as your progress goes ahead, it has to be known to the men who are working, to see what they are doing, and make no mistakes.

Q. Referring to Plaintiff's Exhibit 44 and the diagram on the right-hand side, this point here which I am pointing to from which the hand projects represents what?

A. This is the excavated face of the drift. Now, I am putting up a post first of all; we run over here and establish the grade for our foot block. From the line we establish the distance out for that foot block. Now, we have established the direction and the elevation and the distance out for the foot block, and we know how far from that foot block [666] we are going to place the next foot block in order to give us operating room. We establish the

(Testimony of Lewis Michael Larson.)

top of our post in the same way with a necessary distance. If you establish your top and bottom you have the inclination of your post or the plumb of the post, whatever is required in the different directions you establish all of the drilling factors, and you are starting off then with a positive elevation and positive line.

Q. During the time that you were employed by the plaintiff were those lines and grades stated on Plaintiff's Exhibit No. 44 established in each of the drifts which were driven before the excavation proceeded? A. Not by the force of—

Q. I am asking you that question, were they established? A. They were not.

Q. Listen to the question I asked you. Will you please read the question?

(Question repeated by the reporter.)

A. They were established.

Q. Who established them?

A. Engineers employed by the Six Companies, paid by the Six Companies.

Q. Did the District during that time establish any of these lines and grades?

A. No, not that I know of. I am positive they established none in the drift.

Q. By the District, I mean the defendant in this case, or its employees. A. No.

Q. Did the District, to your knowledge, establish any lines and grades in the tunnels?

A. Yes, they did.

(Testimony of Lewis Michael Larson.)

Q. Will you describe what they did?

A. After the excavation was advanced a certain distance, an indefinite distance, they would follow up, giving us the center line and elevation at that point. They were follow-up lines, they were not advance lines. [667]

Q. How far back were those lines usually from the core of the tunnel which was being excavated?

A. I will have to give an estimate of that. I should say approximately all the way from 100 to 300 feet.

Q. Would those be sufficient lines and grades for you to work to in constructing the tunnel?

A. Decidedly not. To work to they had to be where we were working, they had to be in a forward position, not in a backward position.

Q. Do you know, Mr. Larson, what is ordinarily referred to in the construction industry as contractors engineering? A. Yes, I do.

Q. What does that mean?

Mr. Wittschen: I object to that as immaterial, irrelevant, and incompetent, and asking the witness first to endeavor to interpret the contract, and, secondly, asking him to give a definition in general terms which is not binding upon the defendant.

Mr. Marrin: The object is this, there is a provision in the specifications which I think has been read before. It is subsection (s) under Section 6 on page 7, which is entitled "Lines and Grades." It says, "The contractor is to furnish free of charge

(Testimony of Lewis Michael Larson.)

all stakes necessary for marking and maintaining points and lines given by the District Engineer; and shall give the District Engineer such facilities and materials for giving said lines and points as he may require, and the District Engineer's marks must be carefully preserved. Sufficient points to line and grade will be set for the contractor to work to and no additional stakes will be set. Any such stakes or marks lost, damaged or obliterated shall be replaced at the expense of the contractor. The contractor shall do his own engineering and shall be responsible for the completion of the work to proper lines and grades in conformance with the stakes set by the District Engineer. The District Engineer shall be furnished facilities for the checking of lines, elevations, [668] grades and forms at all times during the progress of the work. The contractor shall, without charge to the District, provide openings for and suspend work that will in any way interfere with the surveys, at such times and for such periods as the District Engineer may deem necessary." Now, in order that Your Honor may understand the meaning of this, I will say that early in the performance of this contract the plaintiff demanded of the District Engineer, and which will be fully proved, and kept on demanding for months that the District Engineer set sufficient lines and grades in these drifts for the contractor to work to. The District Engineer took the position

(Testimony of Lewis Michael Larson.)

that this provision of the specifications which said that the contractor shall do his own engineering requires the contractor to do all that work. As we view it it was a condition precedent to the contractor's obligation to perform, which work should have been done by the District. Now, the term "contractors engineering" as used in the construction industry is of the nature of a technical expression and we want to produce witnesses to testify as to the usually accepted meaning of that phrase so that your Honor may have the benefit of knowing and deciding in this case what meaning it would have to a man familiar with the usages in the construction industry.

Mr. Wittschen: We do not object to this witness stating that the District did not do certain things. The term "contractors engineering" is not being used. It said that the contractor should do his own engineering. The question now is asked of this witness to interpret something that is not in the specifications, what is known by the term "contractors engineering". These specifications state that the contractor will do his own engineering and your Honor will ultimately have to construe what this means, but I do not [669] think that a witness called by one party has the right to define a term that is not in the specifications.

The Court: You may, if you limit it to the language of the specifications, develop from this expert any thought that you have in mind.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. Mr. Larson, I will show you the specifications and ask you to look at this part of Section 6, subdivision (s) on page 7, and I will ask you to read that and state to me what obligation the contractor had under that provision of the contract, in your opinion?

Mr. Wittschen: Objected to as immaterial, irrelevant and incompetent, and calling for the opinion and conclusion of the witness upon a matter which is not the subject of expert testimony, and seeking to have the witness do something which should be done by the Court.

Mr. Marrin: That is Plaintiff's Exhibit 3.

The Court: I will allow the testimony in subject to the motion to strike.

Mr. Wittschen: Exception.

Mr. Marrin: Q. Will you read it first and then tell us what it means?

A. "The contractor shall do his own engineering and shall be responsible for the completion of the work to proper lines and grades in conformance with the stakes set by the District Engineer." Is that the extent that you wish?

Q. Yes, just read that.

A. My understanding of contractors engineering is that if the contractor wishes to have some change in the plans, in the method of constructing the concrete or some other detail, that he must apply to the District Engineer for the District Engineer's Approval; to show what he has in mind, that he

(Testimony of Lewis Michael Larson.)

must do his own engineering so far as the location of the plant, give the right lines and grades for it, the indication [670] of the equipment that he is going to use in the prosecution of the work. That is my opinion of that clause.

Mr. Marrin: Q. Is it your opinion that under that clause the contractor has an obligation to set those lines and grades for the construction of the tunnels?

Mr. Wittschen: Objected to as leading and suggestive and having been asked and answered. The witness was asked to construe the clause and did so, and counsel now is suggesting something else to him.

The Court: Read the question.

(Question repeated by the reporter.)

Mr. Wittschen: And all of the other grounds.

The Court: He may answer subject to the objection.

Mr. Wittschen: Exception.

A. It is my opinion that the contractor would not be required to do any of the work; that is a part of the owner's work.

The Court: Under your construction of this clause, what was not done? What did the engineer fail to do?

A. The engineer failed to give us points to work to that were necessary for us to carry on our work properly.

(Testimony of Lewis Michael Larson.)

The Court: Briefly indicate that for the purpose of the record so I may have some understanding of it.

A. Referring to Exhibit No. 44, none of the points that are indicated in this exhibit were given by the owner and were all given by the contractor. My understanding of the contract would be that these lines and these grades were an obligation of the owner and not the contractor.

Q. Was he to build that frame? A. No.

Q. How could he give those lines without constructing it?

A. We put up the frame and then after the frame is put up he [671] comes and puts the lines and grades on the frame that we have constructed; he checks them in case of possible movement.

Q. Very well. What does that operation involve, briefly?

A. The operation involves the employment of an engineer with an assistant who will pick up from some back point, giving a line to the engineer who has the instrument for projecting that line and then after the engineer has picked up from this point in the rear, or at some other point that may be chosen by the engineer, who has surveyed the point he could get the line into the several drifts on the frame that we have erected. The same applies to the grade in that his assistant will have to pick up the grade from some well established and positive point and carry that into the several drifts.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. Mr. Larson, is this a drift which has already been constructed?

A. That has been constructed in its present form and everything is noted in that drift except the grade and the lines, and they are to be supplied.

The Court: It is clear to both sides, is it not, what I am trying to develop? I just want to follow it. That is the reason I asked the witness, I do not want to mislead either side.

Mr. Marrin: I thought your Honor was a little bit confused when you asked the witness if they required them to construct the framework. I wish to simply bring out that that drift is in without noting the lines and grades to proceed to.

The Court: Let me say this off the record.

(Discussion off the record.)

We will take a recess now until Tuesday morning at 10 a. m.

(An adjournment was here taken until Tuesday, April 19, 1938, at ten o'clock a. m.) [672]

Tuesday, April 19, 1938.

Mr. Marrin: May it please your Honor, we would like to put a witness on out of order; his testimony will be rather short and I understand the other side has no objection.

The Court: Very well.

ALFRED JOSEPH ORSELLI.

Called for the Plaintiff; Sworn.

Mr. Marrin: Q. What is your business, Mr. Orselli? A. Civil engineer.

Q. Are you a graduate engineer? A. I am.

Q. Of what university?

A. University of California, Berkeley.

Q. When did you graduate? A. In 1927.

Q. During the years 1933 and 1934, were you employed by the W. A. Bechtel Company.

A. I was.

Q. Will you state when you entered the employ of that company? A. November, 1933.

Q. For how long thereafter were you employed by the W. A. Bechtel Company?

A. Until June, 1934.

Q. Continuously? A. Continuously.

Q. During the time you were employed by the W. A. Bechtel Company did you have anything to do with making estimates for bidding upon the project of Joint Highway District No. 13?

A. I assisted Mr. Larson in the preparation of his estimates by securing material quotations and making extensions of his estimates.

Q. And in checking his estimates?

A. And in checking his estimates.

Q. I show you a document marked "Report and Proposal Tunnel Proper, Broadway Tunnel Project of Joint Highway District No. 13," which also has on the cover page, "Engineering Development De-

(Testimony of Alfred Joseph Orselli.)

partment [673] Bechtel Kaiser Company, Ltd., 155 Sansome street, San Francisco, California, and ask you to tell me what that is.

A. This document—

Mr. Tinning: Just state what it is, Mr. Orselli.

A. This document is a recast of Mr. Larson's original estimate in the form required, or the recast of Mr. Larson's estimate as handed to me in the form required by the Bechtel interests.

Mr. Marrin: Q. Is the information in there the same or different from that contained in Mr. Larson's estimate?

Mr. Tinning: Just a moment, we object to the question on the ground that it does not call for the best evidence, in that the original sheets and documents that were handed by Mr. Larson to Mr. Orselli are the best evidence.

Mr. Marrin: I might explain, Mr. Tinning, that we have here the original sheets which Mr. Larson prepared and they are in the form of pencil notations, and are not in particularly intelligible form to the Court, and it is not our purpose to introduce those in evidence, because we think they will simply incumber the record. However, they are here available for your examination and available for your use upon cross-examination. The purpose of this testimony, your Honor, is to show, and we offer to show through Mr. Orselli, that he took these pencil notations of Mr. Larson's and his estimates, and recast them in the form required by the W. A. Bechtel Company; that thereafter changes were made and that this recast was revised and it

(Testimony of Alfred Joseph Orselli.)

was upon this revised recast that the bid of Six Companies of California was made; in other words, the purpose of this is to trace through and show the connection between Larson's estimate and the bid which was submitted by the plaintiff in this case to the defendant in this case. We are not offering this particularly for the purpose of [674] proving the details of these figures, but to show that the final bid was substantially the same as Mr. Larson's estimates. That is the purpose of this testimony.

Mr. Tinning: We think that we are entitled, in tracing this through—I may not understand Mr. Marrin, but we think that we are entitled in the tracing of this matter through to have each of the documents that finally resulted in the bid; in other words, that we have Mr. Larson's sheets, that we have then what Mr. Orselli did with them, and then if they were recast I think logically that would be the next step.

Mr. Marrin: That is exactly what we propose to do.

Mr. Tinning: If I understand your statement you do not propose to introduce the original sheets of Mr. Larson.

The Court: Subject to your check if any attempt to digest is offered here; I take it that the original sheets are here and may be examined in detail. Do I follow you?

Mr. Marrin: That is correct, and they may introduce them in evidence if they desire.

(Testimony of Alfred Joseph Orselli.)

Mr. Tinning: In other words, we do not know what support there is to this because we have not examined the supporting documents and we are not in a position to stipulate. We do not question that you made some kind of a recast, but we do not care to stipulate to some document which is not supported by other documents.

Mr. Marrin: I am not asking you to stipulate to it or to the truth of any of the statements in it. I am merely asking this witness to identify and explain what it is, and then I propose to offer it in evidence.

The Court: As a legal matter I will sustain the objection, the objection is good. [675]

Mr. Marrin: Upon what ground?

The Court: The legal ground is good, namely, you have a digest here from some original sheets. They ask for the best evidence, and, under the rule, they are entitled to it. If they insist upon the objection the Court will sustain the objection.

Mr. Marrin: Do you insist on the objection?

Mr. Tinning: Yes. It is not to embarrass you, but we simply feel it is a necessary part of the case.

Mr. Marrin: It is not exactly a digest of it, your Honor, it is a recast in form.

The Court: You might offer the recast, but he is entitled to the original under the rule; he has called for the best evidence.

Mr. Marrin: In that case I presume we had

(Testimony of Alfred Joseph Orselli.)

better withdraw this witness temporarily and put Mr. Larson on.

The Court: Maybe after he examines this he will not object. I don't know what is contemplated.

Mr. Tinning: We do not know either. We have not seen it yet.

The Court: After you examine it probably you may get in accord on the presentation of it. I don't know.

Mr. Marrin: Q. Mr. Orselli, I show you here a file of pencil notations and figures and ask you if you can identify that and tell me what that is?

A. The file of pencil notes and papers herein are the original sheets prepared by Mr. Larson, passed to me for basing an estimate on the Broadway Tunnel proper.

Mr. Marrin: We now offer these in evidence.

Mr. Wittschen: We object to them on the ground that they are immaterial, irrelevant, and incompetent, cannot in any way change the original contract with the parties, and that the ultimate figures are those in the bid of the plaintiff in this case, and any preliminary figures tend to prove no issue.

[676]

Mr. Marrin: They are not offered for the purpose of varying the written contract in any respect. They are offered for the purpose of showing that Mr. Larson, as he has already testified, relied upon the geological reports, specifications and other matters in making this bid, and showing through this

(Testimony of Alfred Joseph Orselli.)

witness that the figures which Mr. Larson submitted were used by this plaintiff as the basis for the bid on this contract. There is no purpose to alter the contract or alter the amount of the bid, at all. It is simply a matter of connecting Mr. Larson's reliance with the bid which was made by this plaintiff.

Mr. Wittschen: The final figures submitted speak for themselves.

The Court: Is the matter submitted? I want both sides to protect the record.

Mr. Marrin: Yes.

The Court: The objection wi. be sustained.

Mr. Marrin: Note an exception, your Honor.

Mr. Alexander: We join in the exception, your Honor.

Mr. Marrin: I assume your Honor has ruled on this matter, but I would simply like to draw your attention to the fact that you did permit Mr. Larson to testify respecting this estimate, and this is simply confirmatory of the fact that he did make this estimate and turned it over to the plaintiff in this case.

The Court: That is his estimate and he turned it over to the witness on the stand?

Mr. Marrin: Yes.

The Court: Q. What was the purpose of doing that, if you know?

A. For the purpose of recasting it in the form required by the Bechtel interests.

Q. What was that purpose?

(Testimony of Alfred Joseph Orselli.)

A. For the intelligent presentation [677] of Mr. Larson's estimate in a form in which the Bechtel interests will understand it.

Q. And it was in preparation for making a bid on this work? A. Oh, yes.

The Court: You will have to stand on the bid. I will allow any reasonable latitude in reference to the thing that counsel suggests; whether they were misled by the geology or what not I am not prepared to say.

Mr. Marrin: Do I understand your Honor's ruling is that the plaintiff will not be permitted to connect up Mr. Larson's reliance with the plaintiff's bid in this case?

The Court: Mr. Larson is here and can testify as a witness and having his figures passed on to a third party, how will that corroborate it? There is no doubt about the bid figures, is there?

Mr. Tinning: No.

Mr. Marrin: But in ariving at the bid we had to go on someone's figures, and someone's prepared method. We are proposing to show that this plaintiff relied and acted upon Mr. Larson's figures as to costs and upon his proposed method as to procedure. Now, we propose to show that he turned it over to Mr. Orselli and he revised it so that it would fit in with the form of estimate that is ordinarily used by the W. A. Bechtel Company, that it was then turned over to the president and

(Testimony of Alfred Joseph Orselli.)

representative of the plaintiff in this form as prepared by Mr. Orselli, was slightly changed by them, and that their bid was based upon this estimate which was made by Mr. Larson. As we see it, we must show that connection, and this testimony is offered for the purpose of connecting up this bid with Mr. Larson's estimate.

The Court: I have in mind the record, and I am inclined to limit this record to the point where I am not misleading either one [678] side or the other; as to the question of law in the presentation of the case, I have some fixed state of mind; in fact, I do not want to preclude you from having a record in the event I am in error about the law in regard to this position. Now, the theory of presenting this evidence has to do with the geologist's report?

Mr. Marrin: It has to do with this. Mr. Larson already testified, as you will recall, to some extent that he relied upon the geological report and plans and specifications in making his estimates. Now, there is nothing, so far in this record to show that this plaintiff adopted and relied upon Mr. Larson's estimates in making its bid. The purpose of this testimony is to show Mr. Larson did prepare a bid, that he submitted it to the representative of this plaintiff, and the plaintiff used those figures and those methods as a basis for submitting its bid; in other words to show that its bid on this contract was made in reliance upon Mr. Larson's work. That is the purpose of this offer of testimony.

(Testimony of Alfred Joseph Orselli.)

The Court: I am prepared to give you a wide latitude and reasonable opportunity for presenting your theory of the case. I am in doubt as to what the proper method to follow is. I would not even suggest to you in presenting this case that you put a witness on the stand on the geological report or that some other evidence be offered and presented. I have in mind in discussing this matter that I have an open mind on all of these matters, and I want to give both sides the benefit of it without misleading them to their injury.

Mr. Marrin: Surely, your Honor, and here are the facts of the situation. Mr. Larson was the man who was employed to and did make the estimate, as is shown by his testimony; he then turned his information over to others who made the final compilation of the bid from his estimate. Now, if we must stop with Mr. Larson we are left suspended in mid air. [679]

The Court: I have that in mind.

Mr. Wittschen: Might I suggest that the final man who put in the bid—I will object to the evidence because I do not think it is material, but he can say that he relied on Larson's figures and he could get it without going through all the detail figures.

The Court: That is what I had in mind. Your theory of the case is whatever the facts may be he will have an opportunity to check them.

(Testimony of Alfred Joseph Orselli.)

Mr. Wittschen: Whoever put the bid in can tell you they relied on the report of Mr. Larson, and I will object to that as immaterial, but that will be the ultimate fact you are entitled to prove.

The Court: As a matter of law I agree with counsel at this time. I may be in error, but I want to give you a record.

Mr. Marrin: Surely. I feel very strongly that it is necessary to have the testimony to show what Mr. Larson's estimate was and to show that the plaintiff in this case relied upon it.

The Court: I think it might be helpful if you withdrew the witness on the stand and called your geological expert and then make an offer of all of this testimony at the proper time. I want to give both sides an opportunity to present their theories of the case and have a record in the event that I am mistaken about my views.

Mr. Marrin: Surely, your Honor. Before I withdraw this witness I would like to make an offer of proof for the record. We offer to prove through the witness on the stand that the estimate of the costs and methods of doing the work described in the contract between the plaintiff and the defendant, made by Mr. Larson, were delivered to this witness, who was then an employee of the W. A. Bechtel Company, and that this witness then made a recast [680] of Mr. Larson's estimates, simply for the purpose of changing the form; that this recast was then submitted to S. D. Bechtel, President of the Com-

(Testimony of Alfred Joseph Orselli.)

pany, at a conference between him and Mr. Hindmarsh——

The Court: Who was he?

A. He was an employee of W. A. Bechtel Company, and Mr. Fontaine, at which conference certain changes in Mr. Larson's estate as recast by Mr. Orselli were made. We offer to show the changes which were made. We further offer to show that this witness then made the changes which were discussed and agreed upon at that conference and that Mr. Larson's estimate, with those changes, was adopted as the basis of the bid of the plaintiff in this case for the contract which was entered into between the plaintiff and the defendant.

The Court: How would the defendant be bound by anything that might have happened there.

Mr. Marrin: It is not a question of binding the defendant, as I see it, your Honor, it is a question of showing the reliance of this plaintiff upon Mr. Larson's estimate. It is a question of fact, did the plaintiff, or did it not, rely upon the estimate which had been made by Mr. Larson? That is not a matter which in any way changes the contract or the specifications. We are making no attempt to do so. We are attempting to prove the fact of Mr. Larson's reliance upon the geological report and specifications in making the estimate, and, secondly, the reliance by plaintiff upon the work done by Mr. Larson. It is a matter of connecting it up. We offer to make that proof through this witness at this time.

(Testimony of Alfred Joseph Orselli.)

Mr. Wittschen: To which offer we make objection on all of the grounds heretofore made, and on the further ground that the ultimate figure in the bid and not the process of arriving at [681] the bid bound the parties.

Mr. Marrin: The ultimate figures in the bid do not disclose anything with reference to what that bid was based upon.

The Court: Is it conceded that this recast in the manner set forth had to do entirely with the Bechtel Company?

Mr. Marrin: No. I might state, in order that you may understand it, the initiation of the work of making this estimate was done by the W. A. Bechtel Company in association with five other associates at the time they started the work.

The Court: I understand that, but who of the defendants were in the meeting?

Mr. Marrin: None of the defendants were in the meeting. We are not attempting to bind them by any conversation or anything of that kind. We are simply trying to show what was done in making up this bid.

The Court: The Court will sustain the objection at this time.

Mr. Marrin: Note an exception.

Mr. Alexander: We join in the exception, your Honor.

Mr. Marrin: We will withdraw this witness. Mr. Larson, will you take the stand, please?

LEWIS MICHAEL LARSON,

Direct Examination (Resumed)

Mr. Marrin: Q. Mr. Larson, I show you here certain pencil notations and ask you if you will identify those. [682]

Mr. Marrin: Q. Will you state what those are, Mr. Larson?

A. With the exception of these sheets, this comprises the papers on which I recorded my estimate on the Broadway Low Level Tunnel.

Q. That is the estimate to which you have testified, in previous testimony, Mr. Larson?

A. It is.

Mr. Marrin: I offer that in evidence.

Mr. Wittschen: To which we will object, on the ground it is incompetent, irrelevant and immaterial; self-serving, as far as the plaintiff is concerned; and not binding on the defendant.

Mr. Marrin: For the sake of the record, I would like to make an offer of proof, your Honor, and state that we offer to prove, through this witness and by this evidence, the estimate by Mr. Larson made on the cost of doing this work and his reliance upon the statement in the plans and specifications and the geological report in making that estimate.

Mr. Wittschen: We add the further objection that that is all merged in the bid itself.

The Court: The objection will be sustained.

Mr. Marrin: Exception.

(Testimony of Lewis Michael Larson.)

Mr. Alexander: We join in the exception, your Honor.

Mr. Marrin: You may cross-examine.

Cross Examination

By Mr. Tinning:

Mr. Tinning: Q. Mr. Larson, were you ever employed by the W. A. Bechtel Company before February 25, 1934? A. I was not.

Q. Were you ever employed, prior to that time, by any of the remaining organizations which later formed Six Companies of California, the plaintiff in this action?

A. I had never been employed by any of the members that formed that group.

Q. How long, after February 25, 1934, were you continuously employed by either the W. A. Bechtel Company or the Six Companies [683] with which they were merged in the doing of the work on the Broadway Tunnel?

A. I was employed by the W. A. Bechtel Company until after the submission of the bids to the Joint Highway District for the Broadway Tunnels. I believe my transfer from the W. A. Bechtel Company to the Six Companies was about the 28th of May; that is my recollection.

Q. About that time, they knew and you knew they were low bidder on the job?

A. That is correct.

Q. How long were you engaged in making your estimate in this case for the bid?

(Testimony of Lewis Michael Larson.)

A. Possibly a total time of two months. That was interrupted by other estimates. There is a reason for my qualifying that statement.

Q. When you say "other estimates," you mean estimates on other jobs? A. That is correct.

Q. So that you started somewhere around the 1st of March—the 25th of February, I believe you gave us as the date, and continued two months, to about the 1st of May.

A. Until the —until probably the 28th of May, with the W. A. Bechtel Company.

Q. No, Mr. Larson. I was now directing your attention to the time you spent in the preparation of your estimate. I believe you stated you arrived in Oakland on the 27th of February, 1934, and started immediately working on your estimate; and it took you about two months to prepare the estimate,—to complete the estimate?

The Court: During that period, he did other work,—that is, estimated on other work.

The Witness: A. That is correct.

Mr. Tinning: Q. Therefore, you did not spend two months continuously in the preparation of this estimate?

A. May I enlarge on that a little bit?

Q. Would you mind answering "Yes" or "No," first?

A. Approximately [684] two months spent on this estimate.

(Testimony of Lewis Michael Larson.)

Q. How much time did you spend on making other estimates during that period?

A. Between February and May,—is that the intent of your question?

Q. Well, you say "two months approximately to prepare the estimate for the Six Companies"?

A. Yes.

Q. Was that a continuous employment, or did that preparation cover more than two months of the calendar? A. It was interrupted.

Q. How long was the interruption?

A. As I recall it now, there was an interruption of almost a month.

Q. During what period was that,—the interruption?

A. My recollection is, now, that it was about the 28th of March until somewhere around the 20th of April.

Q. What were you doing during that period?

A. I was estimating the Fort Peck Tunnel, Montana.

Q. Were you in Oakland or San Francisco while you were making the estimate of the Fort Peck Tunnel?

A. I went to Fort Peck, surveyed the site, and did some of the estimating, on the train, on my return; and in San Francisco, the major part of the estimating was made. This was followed by an estimate of the Figueroa Street Tunnel. The whole period of time, as I can recall it, was approximately a month that was spent on other work.

(Testimony of Lewis Michael Larson.)

Q. Then you came to Oakland about the 25th or 26th or 27th of February, 1934, and you left about the 20th of March, and then went East to the Fort Peck Tunnel, and then came back to San Francisco and worked on the estimate for the Fort Peck Tunnel, and then went to Los Angeles to estimate the Figueroa Tunnel? A. That is correct.

Q. Was that for the W. A. Bechtel Company?

A. Under the same employment. [685]

Q. Under the same employment?

A. That is correct.

Q. When you completed your work on these other two estimates, you then directed your attention again to the Broadway Low Level Tunnel estimate? A. I did.

Q. When did you conclude your work on the Broadway Low Level Tunnel estimate?

A. Shortly before the bid was entered; possibly a week; that would be some time about the 15th of May, is my recollection.

Q. You testified, last week, that you prepared various parts of your tunnel bid, or tunnel estimate, on sheets of paper which you delivered to Mr. Orselli and other employees of the W. A. Bechtel Company. Were those all delivered at one time, or were they delivered as you finished your work on each sheet?

A. As I finished my work on each sheet.

Q. Were any of those sheets delivered by you to anyone at the time you left this work, about the 20th of March, and took up the Fort Peck Tunnel estimate?

(Testimony of Lewis Michael Larson.)

A. They were all delivered——

Q. Mr. Larson, the question is: Were any delivered by you to anyone prior to March 20th, or whatever date it was that you left and went on the Fort Peck estimate? A. Yes.

Q. Some had been delivered before that time?

A. They had.

Q. Were other sheets prepared by you for this estimate on the Broadway Tunnel some time around the 20th of April?

A. It is difficult for me to give you a "Yes" or "No" reply to that, for the reason I can only recall from memory that I had substantially finished the estimate on the Broadway Tunnel,—that is, I had given a rough total; and then, from those sheets delivered to me, I had completed a finished total, or a more studied answer to the different problems.

Q. That finished total that you refer to: was that something you did before you went away, about March 20th?

A. No. I arrived [686] only at a relatively close result of what the total would be.

Q. Mr. Larson, I think that is quite—I am trying to make this plain. I am asking if that more finished total, to which you just referred, was prepared before March 20th or afterwards, when you came back from the other work.

A. After March 20th.

Q. So that, during the period from March 20th until April 20th, when you were away, these sheets

(Testimony of Lewis Michael Larson.)

were all given to Mr. Orselli or some other employee of Mr. Bechtel's Company, during that interruption when you were away from the work?

A. To the best of my knowledge, they were.

Q. During that time, as I understand it from you, more finished estimates—the material quantities, were secured,—that is, the cost of cement and other things that went into the work; they were added in to your estimate; is that correct?

A. Progressively, as those items came in, yes.

Q. Well, you were not there during the period those items were coming in, though?

A. A good part of the time I was.

Q. What was the condition of your estimate on March 20th? You said it was partly finished; you had a rough total. Were there any material quantities in your estimate when you left on March 20th?

A. The estimate, in regard to weight—I figured the weight, for example, of the flues; and I take off different quantities, and I estimate the number of pounds.

I know about the prices various manufacturers charge for various articles.

Q. You determine that from your experience, and you attribute, from that judgment which you exercise, prices that those various materials will cost that go in to the estimate?

A. Yes, that is true; and, from that, I arrived at what we term a rough total. [687]

Q. When you arrived at that rough total, that was wholly on your own work and the sheets which

(Testimony of Lewis Michael Larson.)

you finished were wholly prepared by you?

A. Entirely so.

Q. Before you left, about March 20th, was anything added to those sheets or to the estimate, by any person other than yourself?

A. Not to my knowledge.

Q. Then, when you came back a month later, you found the data,—the quotations on the various materials that were required for the performance of the work, such as cement, timber and iron, and many other things that went into the work?

A. I found some of them, but not all.

Q. Not completed at that time?

A. No; not completed.

Q. In other words, you still had to make this final rough estimate which you prepared; you had to get further material prices?

A. That is correct.

Q. How long after you came back, did you complete the assembling of that data?

A. I think it was completed about the 15th of May, so far as my direct contact with it was concerned, although there may have been certain material prices that had not been received.

Q. When you concluded with the estimate on May 15th, there were still certain items for the cost of various materials that must be received and incorporated in the final figure?

A. Yes. They were receiving different quotations from different people, and some were slow in making their answers.

(Testimony of Lewis Michael Larson.)

Q. The last time you had to do with the estimate was about May 15th?

A. The last time when I entered anything into my estimate was about May 15th.

Q. When was the meeting with Mr. Hindmarsh and Mr. Bechtel; what was the date of that?

A. I am not prepared to answer that, because [688] my memory is defective; but I think it was about that same time, as near as I can recall.

Q. Mr. Larson, did I understand you to say that your memory was defective?

A. In telling you on certain dates, yes, extending back four years.

Q. After you undertook your work for Six Companies, about the 28th of May, 1934, how long did you continue in the employ of the Company, continuously?

A. Until the 30th of April, 1935.

Q. Did you resume employment for the plaintiff after that date,—April 30th, 1935?

A. I did.

Q. When, Mr. Larson?

A. As I recall it, it was about the 15th of September.

Q. How long did your employment last at that time?

A. My recollection is that it was until the 1st of December, 1935.

Q. You came on the job, did you not, the day following the slide that occurred on the night or the evening of August 28, 1935? A. I did.

(Testimony of Lewis Michael Larson.)

Q. You say, now, you think you were employed about the 15th of September. Weren't you employed immediately following the slide?

A. I was employed by the legal department.

Q. You were employed by the legal department?

A. Yes.

Q. That is the legal department of the plaintiff Six Companies?

A. As I understand it.

Q. How long did you remain in the employ of that Company,—the legal department?

A. Only two or three or four days, as I recall it now. It was not long; it was merely to make a survey of the conditions.

Q. That was August 29th?

A. August 29th.

Q. And the employment lasted three or four days; and then did that employment cease?

A. It did. [689]

Q. For the Six Companies altogether, at that time?

A. I have no recollection, after that time, of having any direct association. I was in conference with Mr. Hindmarsh during that time, however.

Q. Then, on the 15th of September, you went back with the Six Companies, engineering department, under a regular employment?

A. That is correct.

Q. And you were engaged in what I think you call "recovering the Tunnel"; that is, taking out the slide?

(Testimony of Lewis Michael Larson.)

A. Yes; that is the portion that had caved in.

Q. Yes, the portion that had caved in. From September 15th until about December 1st, your time was given to that work,—the recovering of the Tunnel, the removal of the material that had caved into the Tunnel; and did you have anything to do with the placing of the concrete, the retimbering in the portion of the Tunnel where the cave-in had occurred?

A. I did whatever was necessary in that portion, including the lining of that section of the Tunnel.

Q. So that, in recovering the Tunnel,—to make it fully clear,—you, afterwards, had charge of removing the caved in material, removal of the debris, and the timbering of a section of the Tunnel that had been impaired by the cave-in, the restoration of the timbering, the construction of the forms, and the pouring of the concrete in the forms?

A. That is correct.

Q. And that required from about the time you started on the 15th of September? There had been some work prior to the 15th of September, with respect to the removal of the bodies of the men who were killed in that accident? A. Yes.

Q. But, beyond that, the work was very much the same on the 15th of September; the condition of the work to be done was very much the same as it had been immediately following the accident?

A. I believe it was. [690]

Q. When you finished your work about the 1st of December, 1935, for the Six Companies, you had

(Testimony of Lewis Michael Larson.)

completed all of the work that was necessary to construct the main concrete arch in the portion of the tunnel that had been affected by the slide?

A. Everything except a little finishing of the lining of what we term "pointing up."

Q. Would you tell us what that is,—"pointing up"?

A. In carrying the weight of the tunnel down to the core, I had substituted rails, and taken out the timbers; those rails, later on, were burned off, back of the inner face of the lining; the pointing up means a covering over of the exposed rail. That was not quite completed.

Q. In other words, you used iron rails, or steel rails, as stulls? A. That is the point.

Q. Through the wooden forms which were installed in this section of the tunnel that was affected by the cave-in? A. Yes.

Q. You covered those holes with cement?

A. That is correct.

Q. After the 1st of December, 1935, when were you again employed by the Six Companies of California?

A. I have forgotten the exact date; possibly other people could supply that better than myself.

Q. Well, you have done pretty well so far. Let's have a little memory exercise.

A. I think it was in October of 1937.

Q. October, 1937. That would be last October?

A. Last October; that is my recollection.

(Testimony of Lewis Michael Larson.)

Q. Were you employed by the engineering or the legal department of the Six Companies last October?

A. By the legal department.

Q. During the short employment you had with the legal department in 1935, what did you do?

A. I was doing a little mining work for myself.

Q. You did not understand my question, Mr. Larson. I asked you not to state the type of employment you were following during your work [691] for the legal department; but what the actual work was that you did.

A. May I have that question read?

(Pending question read by the reporter.)

The Witness: A. Does this cover the period in October——

Mr. Tinning: Q. From the 29th of August, for the three or four days you stated you worked for the legal department.

A. To look at and report the conditions, as I found them in the Tunnel, and outside of the Tunnel, that would affect the work in the Tunnel, and safety of the construction.

Q. By that, you mean you inspected the timbering in the Tunnel, as it stood at that date; the condition that it was in; the excavation in and around the timber; the strain or stresses that might show in the timbering; and, during those four or five days, did you make any measurements of the portion of the timbering that may have intruded in that area required by the concrete?

(Testimony of Lewis Michael Larson.)

A. Not during that period.

Q. In other words, your report was a general report, based upon your knowledge as an experienced tunnel man, as to the conditions you found in the Tunnel immediately following that cave-in?

A. That was the objective.

Q. Did you make a written report on that, Mr. Larson? A. I did not.

Q. To whom did you talk?

A. I talked to Mr. Tom Price. I think I talked to Mr. DeLancey Smith, and to Mr. Hank Lawlor. I believe I talked to nobody else—not that I can recall.

Q. You made no written report of any kind at that time? A. No; just a verbal report.

Q. Did you ever make any written report on that observation?

A. I made notes on that observation that are used for making my verbal report. [692]

Q. Did those notes include references of your observation as to the condition of the timber in the Tunnel? A. I think they did.

Q. Did they also record the places that—or the sections within the tunnel, at which concrete had been poured?

A. I don't think so. I don't think I took the station numbers of that, because that was obvious.

Q. Were there any notes in there showing how long it had been from the time that the concrete lining had been last poured in the tunnel up to the date of that?

(Testimony of Lewis Michael Larson.)

A. No; because I was not familiar with that phase of it, myself. Some pouring had been done while I was absent.

Q. Well, are you prepared to say, now, approximately how much pouring had been done while you were absent?

A. It would have to be an estimate, only. It would not be absolute.

Q. Well, what, in your opinion, was the amount of concrete lining that had been placed after you left on April 30th?

A. I think, about 80 feet in the north tunnel, from the point where I had lined the first 110 feet; in the south tunnel, possibly two or three hundred feet; that is all an estimate,—just a rough estimate.

Q. Your idea is, now, there had been two or three hundred feet of concrete poured in the south tunnel after you left the work on April 30th and before you returned to it on August 29th?

A. That is my recollection now; I am not sure as to the accuracy of that recollection.

Q. Well, it is your best recollection?

A. Yes.

Q. And in the north tunnel,—the tunnel which you had been in charge of, driving,—that there had been about 80 feet of lining poured?

A. Yes. I am more definite on that, because I know where I had been pouring; that was why my memory is better on it. [693]

Q. That was the tunnel where the slide occurred?

A. That is.

(Testimony of Lewis Michael Larson.)

Q. After you returned to the employment of the legal department of the Six Companies, in October, what has your occupation been?

A. To assist in taking from the Six Companies' records such information as is necessary to form an accurate conclusion of the rate of excavations, the amount of concrete poured, and the number of days' delay; therefore, helping to set up for the attorneys such information as may be necessary and useful for them to have.

Q. Where were you employed after you left the Six Companies of California, the plaintiff in this action, on December 1, 1935, at the time that you finished recovering the caved-in tunnel?

A. Now, getting back to mining, I was working for myself.

The Court: We will take a recess.

(Recess) [694]

(After recess:)

Mr. Tinning: Q. Mr. Larson, you said you left the employ of the Six Companies in the fall of 1935, in December. Did you have any other employment in connection with the tunnel by anyone prior to your going back to the legal department of the Six Companies in October, 1937?

A. Not that I recall; I am sure I had not.

Q. Did you prepare any estimates for any contractor who either bid or considered bidding on the reletting of the work after the Six Companies quit?

A. I did.

(Testimony of Lewis Michael Larson.)

Q. How many estimates did you prepare for contractors who were bidding on the work?

A. I prepared two that were used.

Q. How many that were not used?

A. One.

Q. For whom was the estimate that was not used prepared?

A. I did not have any definite connection at the time. I made the estimate, as is often the case, being unemployed.

Q. Whom did you make it for?

A. Myself.

Q. You made it for yourself? A. Yes.

Q. At what time did you make that estimate?

A. Immediately after the District first called for bids, that date I am not sure of now; you can probably supply that.

Q. That was September, 1936, September 11?

A. Yes.

Q. Did you give the estimate that you made in September, 1936, to anyone? A. I did not.

Q. Did you communicate it to anyone at that time? A. I did not.

Q. How long did it take you to prepare that bid thereafter?

A. I think about a month, as I recall it now.

Q. About a month? A. Yes.

Q. So that for about a month previous to the time, the date on which bids were called for the completion of the Broadway Low Level [695] Tun-

(Testimony of Lewis Michael Larson.)

nel you occupied yourself without compensation by anyone in the preparation of the bid for the completion of the work? A. I did.

Q. Have you that bid or that estimate?

A. I have only a summary of it.

Q. Where were you working when you made the estimate, where was your office?

A. In the Sequoia Hotel here in the City.

Q. What was your purpose in making an estimate of that kind, Mr. Larson? Did you have in mind that you might find some contractor who would pay you for the estimate, someone who might be considering a bid?

A. I felt reasonably sure that I could form some sort of an association.

Q. So that this was not a gratuitous month spent by you, just for curiosity, but you thought you were doing something for which you might be compensated if you found a contractor who wanted it?

A. Yes, directly or indirectly.

Q. That is, by employment, you mean directly or paying you directly for the work that you had done? A. That is correct.

Q. Did you offer that to anyone?

A. I did not.

Q. Did you contact anyone or discuss the fact that you had made an estimate with anyone prior to the time bids were to be received under the District call in 1936?

A. I think I mentioned it to Mr. George Pollock, though I am not sure of that.

(Testimony of Lewis Michael Larson.)

Q. In that estimate that you prepared at that time, prior to the first date on which bids were called in 1936 by the District, did you prepare an estimate of anything other than the work in the tunnel?

A. Yes, I did.

Q. What did the bid for this work call for?

A. My recollection is the bid called for everything that was left uncompleted by the Six Companies.

Q. In other words, the first call for bids, and my memory is cor- [696] rect, that date was September 11, was for the entire job?

A. Yes, uncompleted work.

Q. That date was September 11, 1936, my memory is correct on that? A. Very well.

Q. You prepared then in your estimate the cost of the outside work, that is, what remained to be done, of the highway structures from Keith Avenue and Broadway, some two and a half miles up to the mouth of the west portal of the tunnel, and the remainder of the highway to be done on the east portal in Contra Costa County, the completion of the ventilating buildings at both the east and west portals, and those matters that went to the completed project from the point where it had been left by the Six Companies on June 13, 1936? A. Yes.

Q. What did you use as a basis of your estimate for the completion of the ventilating buildings?

A. I called on the people who had formerly had the contract with the Six Companies to get a quota-

(Testimony of Lewis Michael Larson.)

tion from them; they were prepared to give it to me, but I learned at that time that there would be no bid submitted by any contractor, and consequently when they offered it to me I asked them to hold it in abeyance, I would not need it.

Q. Where did you learn that there would not be any bids by any contractor?

A. I think it was here in the city.

Q. You mean through gossip, that there would be no bids?

A. What we term the "grapevine."

Q. What was the information that you had there would be no bid from any contractor?

A. That the call for bids was too general, not specific enough.

Q. And the result showed your information was correct, there was no bid received on it?

A. I understand there was no bid on it.

Q. And thereafter bids were called again for the 19th of October, [697] I believe the date was, and the work was segregated into driving the tunnel and seven other schedules of outside work, the finishing of the tunnel, the completion of the ventilating building, the installation of the mechanical and electrical and ventilating equipment in those buildings, and into various units of work. You knew that, didn't you, when you worked on your estimate? A. Yes.

Q. You said that the grapevine told you that no bids would be received in the September, 1936 call

(Testimony of Lewis Michael Larson.)

because the call for bids was too general. Was there any difference in the call for bids in October except that the work was broken up into the eight schedules?

A. I think there was, just what the differences were I could not enumerate, but the contractors accepted it as more specific, and I think it is more specific.

Q. There was the same identical specification, was there not?

A. The general specifications I think was the same.

Q. And the tunnel specifications were the same?

A. I believe the chief difference laid in the fact that you paid the contractor in the second call for bids on so much per sack for grouting; I believe it was more specific as to what should be done in the way of finishing. That is as I recall it now.

Q. I think you are probably correct in that; in other words, what you are referring to now as being more specific was in the first call for bids it called for completing the project in that every portion of the tunnel had some work done upon it, and there was no portion of the tunnel that was completed?

A. I believe that was stated in the call for bids.

Q. That was true, was it not, when you made estimates on it?

(Testimony of Lewis Michael Larson.)

A. I was in no position to deny it. I assumed it to be correct.

Q. You went out and looked at the tunnel, didn't you, when you [698] were making the estimate?

A. Yes, but I did not study it in the same detail that an engineer would have studied it who was not in touch with all of the details.

Q. When you made this estimate prior to September 11, 1936, during the course of the preparation, did you go out to the site of the work and go over the tunnel?

A. You mean for the period after September 11—I am a little confused.

Q. I am only using the date of call for bids September 11, the date for which bids were called the first time, and the work was called for under one general contract to complete, I am asking you when you prepared this estimate that you said was never used if you went out to the job and went over it and observed the state of completion of the work?

A. I undoubtedly did; it is my custom always to do that.

Q. Do you have any independent recollection of whether or not you went on the job?

A. I know that I did but I cannot tell you the date nor the circumstances.

Q. It was before you completed the work on this estimate? A. Correct.

(Testimony of Lewis Michael Larson.)

Q. When you visited the project did you observe whether or not the drift from the full excacated face had been driven in from the west portal, had been completed through to the east end of the tunnel?

A. My recollection is there was one drift that was not, and three that were.

Q. In other words, the most northerly drift in the north tunnel was not completely driven through?

A. It was not completely driven through.

Q. And in the same tunnel, the north tunnel, the wall plate drift had been completely driven through from the west excavated face to the east portal on the south side of the north tunnel?

A. Yes, it had been.

Q. That was on the south side of the north tunnel? A. Yes. [699]

Q. In the south tunnel the drifts had driven, the wall plate drifts had driven completely through the tunnel in to the east portal?

A. Yes, you could go from the west end of the tunnel through the drifts, in either drift to the east portal.

Q. So that at that time the ground to be encountered in each of the tunnels had been opened by a drift or drifts all the way through the mountain? A. Yes.

Q. All of the material in the mountain could be observed from those drifts and the nature of the ground?

(Testimony of Lewis Michael Larson.)

A. The material—I think it should be qualified —not all the material in the mountain, but the material.

Q. All the material in the mountain through which these drifts passed?

A. In that immediate vicinity of the drift, yes.

Q. You prepared two other bids in 1936. Let me withdraw that. You prepared two other estimates for bids on the completion in 1936. When was the first of the bids which you say were used by other contractors prepared by you?

A. Immediately prior to the offer of a bid for the completion of the tunnel. I don't remember the date.

Q. Well, for this purpose I think my memory is right. We will assume it was October 19th, I think that is the correct date. I am not sure, Mr. Larson, but I thought I understood you to say that the two bids that were used were prepared—the two estimates which you prepared were used on the second bidding; is that correct?

A. No, I did not intend it that way. The first estimate was the one used by the Six Companies of California, the first bid. The second estimate was not used by anyone. The third estimate was used by another contractor.

Q. Then you did not understand me when you made that statement. I was pointing to another period of time. I am only referring to [700] the

(Testimony of Lewis Michael Larson.)

estimate made by you after you left the Six Companies in December, 1935.

A. Yes. I made only two after that.

Q. You only prepared two estimates after you left, then, in December, 1935?

A. That is my recollection, yes.

Q. Is there any question about your recollection?

A. None at all.

Q. That is, apparently that you prepared two bids, one of them you never used, because you found no one to use it, and the second one was prepared after your first one, and was used by another contractor? A. That is the case.

Q. Who was he?

A. George Pollock Company.

Q. George Pollock Company was the contractor who was the low bidder on the completion of the driving of the tunnel? A. Correct.

Q. And the contractor who completed the work?

A. That is true.

Q. When was that bid prepared?

A. It was prepared immediately prior to the letting of the bid. I cannot recall the date when I began the estimate or when it was completed.

Q. How long did you spend preparing the estimate? A. Ten days.

Q. At that time did you go out to the tunnel again? A. I did.

Q. How many times did you visit the tunnel in the preparation of that bid? A. Once.

(Testimony of Lewis Michael Larson.)

Q. Did you take any measurements of the work to be done?

A. Yes. I took a measurement in this respect: I took the distance stated in the call for bids. I took a rough check on the materials on the ground.

Q. Did you at that time complete an estimate in the same way that you prepared an estimate for Six Companies in 1934?

A. I did not transmit my papers to anyone to check extensions or to get me material quotations. I got those things myself.

Q. To whom did you deliver that bid?

A. To George Pollock, as I recall it; either to George Pollock or to his associate, Mr. Clifford. [701] I am not sure about that. I believe, though, it was Mr. Pollock.

Q. Where did you do the physical work of preparing this estimate during the ten days you worked on it?

A. In my apartment in this city.

Q. Did you keep any copy of that estimate?

A. I did.

Q. Have you a copy in your possession somewhere now?

A. I have a summary in my possession.

Q. Well, you also have a summary of the first bid that you prepared for the completion?

A. Yes, I have.

Q. Did you destroy your work sheet?

(Testimony of Lewis Michael Larson.)

A. Yes. I had no occasion to keep the work sheet.

Q. For your second estimate, which you prepared for Mr. Pollock, were you paid?

A. I was.

Q. Were you employed by him at the commencement of that, the preparation of that bid, or did you begin it as you had the previous one?

A. I commenced it as I had the previous one.

Q. And then you told them you were doing this work and offered your services in preparing the estimate?

A. I did not come that way. I had an offer from different contractors for my estimate, and I accepted the offer that Mr. Pollock had made to me.

Q. What was your reason for leaving Six Companies on April 30, 1935?

A. That would have to be answered by other people. I do not know.

Q. Were you discharged?

A. I ask again that you ask that information from other people.

Q. Well, I am asking you, Mr. Larson, whatever the reason was.

A. There was no reason stated, except that they wished to put the tunnel under one management, both tunnels under one management.

Q. And they told you your services were no longer required after that?

(Testimony of Lewis Michael Larson.)

A. They told me Mr. Whitmire would remain with them, continue with them, and that was, to me, an evidence that my services would not be required.

Q. Mr. Larson, when you were testifying the other day in regard to [702] your experience in tunnel construction in the Coast Range I believe you said that your first experience in the San Francisco Bay Region was in connection with the Bay Shore development of the Southern Pacific Company between 1905 and 1911; is that correct?

A. That is what I stated, yes.

Q. That involved the driving of the Bay Shore tunnels near the San Francisco Bay, from San Francisco down the Peninsula, the present line of the Southern Pacific Company.

A. Yes, one of those tunnels.

Q. One of those tunnels. Which tunnel was it that you had experience with?

A. The one known as Tunnel No. 4.

Q. How many tunnels are there in that development?

A. There are five on the operating line and one tunnel, No. 2, is duplicated; six tunnels in but only five used for operating purposes.

Q. Tunnel No. 5 was your tunnel?

A. No. 4.

Q. Tunnel No. 4? A. Yes.

Q. Which tunnel is that as you leave San Francisco?

(Testimony of Lewis Michael Larson.)

A. Tunnel No. 4 is just as you enter what is known as the Bay Shore Yard.

The Court: The first tunnel, the second tunnel, the third tunnel, or which?

A. It is the fourth tunnel from San Francisco.

Mr. Tinning: Q. The fourth tunnel from San Francisco?

A. Yes, the fourth tunnel from San Francisco.

Q. How long a tunnel is that?

A. My recollection is that it is about 4500 feet.

Q. Through what kind of material is it driven?

A. Through some serpentine and, I think, shale. That is merely my definition, I am not a geologist and I wouldn't say the definition is correct.

Q. Well, serpentine and shale formed the majority of the material [703] through which the tunnel was driven? A. As I recall it.

Q. Is that self-supporting material?

A. No, it is not.

Q. Did you have to timber that tunnel as it was driven? A. I did for portions of it.

Q. Was it driven by the full face operation?

A. No, it was not.

Q. Were there any drills, jumbos, or drifters used in that tunnel?

A. No. In those days we did not have anything but what they termed "double jacking," "single jacking," that is, hand work.

Q. In what capacity were you employed on that work? A. I was the general foreman.

(Testimony of Lewis Michael Larson.)

Q. Who was your superintendent?

A. Mr. Dow.

Q. Was that the first tunnel work that you ever did in the San Francisco Bay Region?

A. It was.

Q. You stated you were employed on that work, the Bay Shore work, from 1905 to 1911?

A. I was.

Q. I think you also stated you were not on the tunnel all of that time, you were in some yard as general foreman.

A. When the tunnel was completed.

Q. How long did it take to drive that 4500-foot tunnel?

A. I think about a year and a half with the driving from both ends. I am not sure of that, I have not any data on it.

Q. How big was the section, what were the dimensions, width and height?

A. I think 26 feet 5 inches high at the center, and about 27 feet wide. I am speaking of the concreted section. That is as I recall it.

Q. How thick was the concrete?

A. Approximately 3 feet. The concrete was an arch lined, brick arch, or a spring line.

Q. Then the walls were practically perpendicular, were they?

A. They were perpendicular.

Q. They were perpendicular? A. Yes.

[704]

(Testimony of Lewis Michael Larson.)

Q. They ran up about how high?

A. I think it was 10 feet 6 inches.

Q. The rest of the arch, you stated, was brick?

A. The total of the arch was masonry work.

Q. You stated something about total.

A. The total arch.

Q. The total arch.

A. We speak of the spring line up to a certain point.

Q. That was a perpendicular concrete wall and then the circular portion with the arch laid in the brick? A. Yes.

Q. Was the core removed before the arch was placed? A. No. [705]

Q. In other words, you stulled in the core of that tunnel as it was drilled?

A. That is true. I might tell you more of it, to make it a little clearer, if I am permitted.

Q. Yes.

A. We had this earthquake, that we might have celebrated yesterday, during the period of that work; and after the earthquake, it seemed very heavy pressure came on the tunnel. It had been registered during the period when we were shut down; and immediately following the earthquake, the minute we began to work the ground, the timbers began to take terrific pressure, and we had to have the core to give support on that account; otherwise, it might have stood without support.

(Testimony of Lewis Michael Larson.)

Q. Well, there was a considerable period, then, after you got some of your excavating done, your timbers in, when you were delayed in construction due to the interruption of the earthquake, and pressure came on those timbers during that period?

A. I think the result of the shake caused it, and may have been immediate but it did not register until we began to move the timbers.

Q. How long was it after the earthquake before you resumed work in the tunnel?

A. My recollection was about 10 days.

Q. It was not a very long period? A. No.

Q. When was the heavy pressure, that you referred to, registered; how long after?

A. Immediately after we resumed.

Q. In 10 days?

A. Yes. We began taking the timber supports out that were resting on the core, in order to lay in the brick and masonry. As soon as that operation began, they began to show signs of weight.

Q. How long, or how far, had the tunnel been driven when the earthquake came over the horizon? A. I think the lower drift—we used the drift system—I think the lower drift was in about six or eight hundred feet; that is my recollection; and the core had been [706] removed possibly three or four hundred feet.

Q. When the core was removed in this Bayshore Tunnel No. 4, was the brick arch in at the time you removed the core? A. Yes.

Q. In other words, you put your permanent lining in before you removed the core? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. Prior to the earthquake, when you were removing the timber, putting in your masonry arch, brick arch, up to that time, you supported the arch by stulls against the core? A. We did; yes.

Q. You did the same thing after the earthquake?

A. Yes.

Q. So, the only result of the earthquake, in so far as the driving of that tunnel was concerned, is that for a time you had heavy pressures following the earthquake? A. That is true.

Q. More difficulty than you had before?

A. Yes.

Q. But the method used in driving the tunnel was the same? A. It was the same.

Q. You took out the timbers, and you carried your masonry arch around before the timbers were taken out? A. Yes.

Q. You had to stull against this timbered arch, as you put it in? A. We did do so.

Q. Did you take all the timbers out of that Bayshore Tunnel?

A. I think we did. I am not entirely clear on that.

Q. That was not self-supporting ground; but you took all the timbers out?

A. That was possible to do that, by the method we pursued, yes.

Q. And you did?

A. Yes. Let me clarify that: To my recollection, we did.

Q. You were there, Mr. Larson?

(Testimony of Lewis Michael Larson.)

A. Yes, I was there.

Q. You are giving us your best recollection?

A. Yes.

Q. Now, apparently after you left the Southern Pacific Company in 1911, at the conclusion of your work on the Bayshore Cut, you were [707] not engaged in the vicinity of San Francisco for five or six years; your work was in other places?

A. That is true.

Q. And apparently, out of California?

A. Yes, out of the State.

Q. You then returned to San Francisco in 1918, and you were employed by the Foundation Company of New York near Colma?

A. At Tacoma; Tacoma, Washington.

Q. Oh, Tacoma, Washington? A. Yes.

Q. My notes are not very clear on that. Then you were not around San Francisco in 1918?

A. No; I was not.

Q. The next time, according to my notes, you were back in San Francisco, or in the vicinity of San Francisco, was in 1923, when you had some work for the Spring Valley Water Company, in the vicinity of Niles Canyon? A. In Niles, yes.

Q. That continued from 1911 to 1923, a period of 12 years, which meant that you were not around San Francisco? A. That is correct.

Q. That is, engaged in tunnel work?

A. Engaging in tunnel work, is correct.

(Testimony of Lewis Michael Larson.)

Q. During that period from 1911 to 1923, did you keep in touch with the general development of tunnel construction in the San Francisco Bay region?

A. I did. This is my home, and consequently, I was interested in whatever might be doing.

Q. I suppose you read the engineering literature that comes out,—the various journals—for instance, the Western Construction News and others that I might call professional journals that have to do with construction work in this vicinity?

A. I do, when they are available, when I have the opportunity.

Q. Well, were you in touch with any of, or did you know about, the construction of other tunnels in that period between 1911 and 1923?

A. I visited the Twin Peaks Tunnel during the period of the opening of that work. [708]

Q. What year was that?

A. That was 1915.

Q. Did you make any observations of the driving of the Stockton Street Tunnel in San Francisco, which commenced, as I recall, in 1913?

A. No; I did not. I was then up in Oregon.

Q. Did you make any observations of the driving of the Fort Mason Tunnel in 1914?

A. No. I was out of the state at that time.

Q. Did you know about that? A. I did.

(Testimony of Lewis Michael Larson.)

Q. Did you make any observations of the driving of the Richmond Vehicular Tunnel?

A. I did not.

Q. Did you know anything about that?

A. No; I know nothing of that.

Q. Now, you started in 1923 with the Spring Valley Water Company; and what were you doing for that company?

A. I was superintendent for them, putting that aqueduct from Niles Canyon, just before the San Francisco Water Department acquired the Spring Valley Water Company.

Q. Did the aqueduct you refer to require any tunnel work? A. No.

Q. Just open cuts?

A. That was all open cut.

Q. And covered? A. Yes.

Q. That work was between Niles and what point? A. Sunol; between Niles and Sunol.

Q. It was the aqueduct that connected the water gate at Sunol with the lines of the San Francisco?

A. It was the replacement of the wooden aqueduct, that was there, by a concrete aqueduct.

Q. In other words, in your work there, did you observe the tunnels in Niles Canyon?

A. I did.

Q. Are any of those tunnels in self-sustaining ground?

A. My judgment is that they are not.

(Testimony of Lewis Michael Larson.)

Q. Did you observe whether or not they were timbered?

A. They are timbered; or were timbered, at that time. [709]

Q. In your judgment, they were not built on self-sustaining ground?

A. I assume that from the fact they were timbered.

Q. Then, as I understand it, your tunnel operations were resumed with the construction by Twohy Brothers of the Hollywood Tunnel in Los Angeles?

A. Yes.

Q. You were there for about two years?

A. Yes.

Q. Some time in 1925 was that work done?

A. I think it was in 1924 and '25.

Q. How long a tunnel is the Hollywood tunnel?

A. I think it is 4325 feet.

Q. What were the dimensions of the tunnel,—the width overall, or inside, the finished lining, and the height?

A. Inside the finished lining, it is 25 feet between walls; and I think about 23 feet high at the center.

Q. Was it lined? A. It was.

Q. With what material? A. Concrete.

Q. Were the timbers removed?

A. They were.

(Testimony of Lewis Michael Larson.)

Q. Was that tunnel driven by a full face driving operation? A. It was not.

Q. Was it driven in self-supporting ground?

A. It was not.

Q. It was driven by a drift method, was it not?

A. Yes.

Q. There were considerable difficulties encountered in driving?

A. We did have difficulties, yes.

Q. Against pressures? A. Yes.

Q. Use breast boarding in places?

A. I don't recall we used any breast boarding.

Q. Did you drive any spiling?

A. No; we did not drive spiling.

Q. Did you advance spiling by taps of sledge hammers? A. Yes.

Q. When did you finish that Hollywood Tunnel?

A. My recollection is it was in July, 1925. That is only a guess. [710]

Q. Following that, you prepared an estimate for a tunnel in the vicinity of San Francisco, did you not? A. Yes.

Q. What tunnel was that?

A. Then known as the Duboce Tunnel; I think now known as the Sunset Tunnel.

Q. Is the ground in the Duboce Tunnel self-supporting? A. Some of it.

Q. You found that out afterwards?

A. Yes, afterwards.

(Testimony of Lewis Michael Larson.)

Q. In preparing your bid, did you assume that the ground would be self-supporting?

A. My memory is not clear on that.

Q. What was the size,—the dimensions,—of the Sunset Tunnel?

A. I think it was about the same size and dimensions as the Hollywood Tunnel.

Q. About 25 feet in width, and about how high?

A. About 22 or 23 feet high, I think.

Q. Was the Sunset Tunnel lined throughout?

A. I believe it was.

Q. Do you know whether the timbers were removed?

A. Yes. In fact, I know some of them were not.

Q. Following your work with Twohy Brothers, in preparing an estimate on the Sunset Tunnel, you prepared an estimate for Twohy Brothers on the Claremont Tunnel, did you not? A. I did.

Q. Then you were later employed as a superintendent of construction on the Claremont Tunnel?

A. I was.

Q. How long was your occupation there at the Claremont Tunnel?

A. I believe it was about June, 1926 until November or December, 1929.

Q. In other words, slightly over three years?

A. Yes.

Q. That tunnel was what size?

A. The excavated size was 12 by 12. The line between was 9 foot horseshoe.

(Testimony of Lewis Michael Larson.)

Q. There was an invert at the bottom.

A. Yes.

Q. And a concrete pipeline of about 9 feet, approximately? A. It was 9 feet. [711]

Q. Was it completely round?

A. No. It was a horseshoe.

Q. How wide was it? A. 9 feet.

Q. How high? A. 9 feet.

Q. So you had an invert at the bottom and a horseshoe at the top? A. That is true.

Q. The excavation of that tunnel was 12 by 12? A. Yes.

Q. How long was the tunnel?

A. 18,004 feet.

Q. It was a water tunnel which was constructed by Greer and Meade, your employers, under a contract with the Eastbay Municipal Utility District, as a part of its system leading from Pardee Dam, into the City of Oakland? A. Yes.

Q. Leading through the Coast Range?

A. Yes.

Q. Leading through the same hills, same mountains, as the Low Level Broadway Tunnel was?

A. Yes.

Q. Following this, you prepared a bid on the Figueroa Tunnels in Los Angeles? A. Yes.

Q. What was the size of those tunnels?

A. My recollection is they are about 46; between 46 and 50 feet wide, inside the lined sections, and somewhere about 30 feet high at the arch.

(Testimony of Lewis Michael Larson.)

Q. How long were those tunnels, approximately?

A. I think they would average about 400 feet; some were longer, and some were shorter.

Q. In preparing your estimate, did you have a knowledge of the materials through which the tunnels were driven?

A. I had such knowledge as I gained from my own observation.

Q. Did you conclude, before you completed your estimate, the materials through which those tunnels were driven were self-supporting?

A. No; I did not, on account of the size of them.

Q. On account of the size of them?

A. Yes.

Q. In other words, the materials through which they were driven were not self-supporting for tunnels of the size that were built [712] to those specifications—It was true that steel support was used to hold up the material while the lining was being put in?

A. That was the design of the——

Q. That was done, was it not?

A. That was, yes.

Q. Following your estimate on those tunnels, you prepared an estimate for a sewer tunnel in San Francisco. For whom was that estimate?

A. Mr. Meade,—W. S. Meade.

Q. The same man you worked for on the Claremont Tunnel? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. What was the name of the tunnel?

A. I don't recall the name—It is out here in the vicinity of the Bernal Cut.

Q. How long was it?

A. Oh, I think about three-quarters—between half and three-quarters of a mile.

Q. What was the size of it?

A. I think about 6 feet on the inside. That is rather a faint memory.

Q. Was the material through which this tunnel was to be driven, in your opinion self-supporting?

A. We had information that on this end we would run into water and sand; there were some borings that gave us that information. The other portion of the tunnel—my recollection is not clear as to what the formation might be,—the conclusion I arrived at.

Q. You don't recall now whether you concluded there was any part of this tunnel that was to be built, that you assumed was to be built, through self-supporting material?

A. I don't recall that now; not clearly enough to testify to it.

Q. You then prepared an estimate a little bit out of the San Francisco Bay region, but in Northern California,—the Newcastle Tunnel,—which is a portion of the road from Sacramento to Reno?

A. Yes.

(Testimony of Lewis Michael Larson.)

Q. Was that tunnel built in self-supporting material?

A. I thought it would be when I estimated it, excepting at the two portals. [713]

Q. What was it, actually?

A. The information I have is after the tunnel—the drift penetrated the tunnel a certain distance, and they found very hard granite.

Q. Quite a different material than anything found here in the San Francisco Bay region?

A. The formation there is different.

Q. That is the Sierra—the foothills of the Sierras? A. Yes.

Q. And a few miles east of Rocklin, where the granite, the ripraps for the Southern Pacific Line, is taken?

A. Yes; they are on this side.

Q. In other words, it is in the granite area?

A. Yes.

Q. They wouldn't be found around here?

A. Not to my knowledge.

The Court: We will take a recess until two o'clock.

(Thereupon, an adjournment was taken until two o'clock, p. m., this date.) [714]

(Testimony of Lewis Michael Larson.)

Afternoon Session

Two O'clock

LEWIS MICHAEL LARSON,

Cross Examination (Resumed)

Mr. Tinning: Q. Mr. Larson, following completion of your estimate for Mr. Meade on the Newcastle Tunnel I understand that you prepared an estimate for a bid on the Wawona Tunnel, which I understand is a tunnel on the southerly road leading out of Yosemite Valley?

A. That it right.

The Court: Is that one the granite tunnel?

A. Yes.

Mr. Tinning: That was a tunnel in which the material was self-supporting, was it not?

A. Yes, I think it was with very little exception.

Q. You so considered it in preparing your estimate for a bid?

A. I did, except that portion in which there was a valley that ran down close to the roof of the tunnel, where I thought some support might be needed.

Q. During construction?

A. During construction, yes.

Q. That is in the granite of the Sierras?

A. Yes.

Q. Following that you made an estimate for a bid for a C. P. R. tunnel in Vancouver?

A. Yes.

Q. What was the tunnel?

(Testimony of Lewis Michael Larson.)

A. It was a railroad tunnel that connected two yards of the C. P. R.

Q. Do you know the name of it?

A. I don't know the name of it.

Q. How long was it, approximately?

A. I think about three-quarters of a mile.

Q. What size?

A. It was a single track tunnel which made it about 17 feet in width on the ground and about 20 feet high.

Q. Was that tunnel lined with concrete lining?

A. It was contemplated to be lined, and I think it was.

Q. What kind of material was that tunnel driven through? [715]

A. I have not any definite knowledge of it, except the survey I personally made of other tunnels in that vicinity.

Q. What did you find from your survey?

A. Laminated material where the laminations were lying in horizontal layers instead of vertical layers, or nearly vertical.

Q. In preparing your estimate for that bid did you assume that the tunnel would require timber supports during its construction?

A. I have forgotten now whether we would have followed directly with lining. I know we had to put in some rails in the concrete. If the rails were considered as support during the construction of course I would not figure on any timber, and I do

(Testimony of Lewis Michael Larson.)

not definitely remember, but I believe when I figured I figured it was a tunnel to be supported by timbers. That is my recollection now.

Q. Following your work in connection with the tunnel at Vancouver, you prepared an estimate for Lindgren & Swinerton for a tunnel at Boulder Dam? A. Yes.

Q. In preparing this estimate for the cost of construction of those tunnels did you assume that the ground would require support during construction? A. 10 per cent of it.

Q. 10 per cent of it? A. Yes.

Q. Did you plan in that tunnel to operate on a full face driving method? A. I did.

Q. And those tunnels were constructed through material which required little or no timber support? A. That is my understanding.

Q. You never saw them during the construction? A. I did not.

Q. Where were the tunnels which you worked on for Merritt, Chapman and Scott near Ventura?

A. Between Ventura and Maricopa.

Q. On what route were they?

A. On the route known as the Ventura-Maricopa Highway, which would be a connecting line [716] between, as I understand it, the Valley Route and the Coast Route.

Q. Between the Coast Route and the Valley Route? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. What was the length of those tunnels?

A. I think the three of them totaled under 1500 feet. I have forgotten the definite length.

Q. What was the size of the tunnels, the dimensions?

A. Standard highway tunnel, which would be approximately 30 feet in width and about 25 or 26 feet in height.

Q. Were those tunnels lined with a concrete lining?

A. Only the portal section, and one part of the tunnel known as Tunnel No. 2, that was in a broken formation, that was lined during the period I was there, and then I am told that they lined all three tunnels completely.

Q. Was each tunnel timbered during construction?

A. No, that is, two of them were not, one was.

Q. Will you give us from the west toward the east the portions of the tunnels that you refer to? You said a portion of the tunnels were lined immediately following the construction.

A Tunnel No. 1, that is the one nearest to Ventura, near the portal section of the tunnel, my recollection is about 10 feet, from 5 to 10 feet of the tunnel; Tunnel No. 2, the next one, about 30 per cent of the tunnel from the west end, and the two portals, with the eastern portal having about five feet of lining. Tunnel No. 3, there were two por-

(Testimony of Lewis Michael Larson.)

tals, the one farthest from Ventura there was approximately 50 feet of the lining near the portal and the east end of the tunnel.

Q. Was timber placed in any portion of the tunnel where there was no concrete lining?

A. No.

Q. What type of material were these tunnels driven through?

A. The first tunnel, No. 1, I don't know the name of the rock, but it was so near to a rock that would not stand as it was pos- [717] sible to without collapse, it was pretty well broken material, and Tunnel No. 2, after we passed through the laminated section for about 35 or 40 per cent of the distance, I think it was 30 per cent, we ran into what was termed an agglomerate, which I have been told is different from a conglomerate in that there is a clay cementing material instead of a sand cementing material. In the third tunnel the rock was considerably firmer. Whether it was granite or not I am not prepared to say.

Q. I think I understood you to say that the third tunnel was where you had lining.

A. The second tunnel.

Q. How far from Ventura is the most westerly of these tunnels, approximately?

A. Between 15 and 20 miles, probably 20 miles.

Q. How far is it from the most westerly tunnel to the most easterly tunnel?

(Testimony of Lewis Michael Larson.)

A. A distance of one additional mile, approximately.

Q. All three tunnels were within a space of a mile on the highway? A. Yes.

Q. Following your work for Merritt, Chapman & Scott near Ventura you prepared an estimate for Lindgren & Swinerton to bid on the outlet tunnel for the San Gabriel Dam No. 1?

A. Yes.

Q. What was the size of that tunnel?

A. That was 30 feet inside the lined section.

Q. Was that a water tunnel with an invert in it?

A. Yes, it was a circular tunnel completely lined.

Q. Was timber used in the construction of the tunnel, do you know?

A. Not a great amount of it.

Q. What type of material was it driven through?

A. It was a rock similar to the one that I represented as being in the No. 1 tunnel of the Maricopa tunnels where it was a question of whether it should have been timbered or whether it was dangerous without timber. [718]

Q. Following this work on the San Gabriel Tunnel you prepared an estimate for Lindgren & Swinerton for work on the Hetch Hetchy Tunnel?

A. Yes.

Q. And the portion of the Hetch Hetchy tunnels which you testified were those lying east of Niles and south of Livermore, through the Coast Range, were they not? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. How many miles of that tunnel did you consider in your estimate, approximately?

A. I have forgotten the miles, but there is a man here that could answer it.

Q. I just want an approximation.

A. I think approximately in the vicinity of 6 miles.

Q. What was the size of that tunnel?

A. 15 feet, between 15 feet excavations, as I recall it.

Q. In preparing your estimate did you assume that you would require timber?

A. Through the major portion of it, yes, it would definitely require timber.

Q. That tunnel was lined with concrete lining?

A. It was.

Q. With an invert?

A. Yes, that was also a circular tunnel.

Q. At the time that you prepared your estimate of the Broadway Low Level Tunnel for the Six Companies in 1934, were you acquainted with the troubles and difficulties that had been encountered in the Hetch Hetchy tunnels? A. I was.

Q. You knew at that time, Mr. Larson, that due to the difficulties there encountered the contractor had been required to keep his concrete up close to the face of his excavation?

A. I knew that he had concluded it was necessary.

(Testimony of Lewis Michael Larson.)

Q. Following your estimate on the Hetch Hetchy tunnels you prepared an estimate for the Yerba Buena tunnel on Goat Island on part of the San Francisco Bay Bridge? A. I did.

Q. In preparing that estimate what did you assume with respect [719] to the ground you would encounter?

A. I thought we would have to do a little timbering there, but the plan of progress had something to do with the answer there, the plan being to drive the two side walls and then concrete that—the plan and specifications also called for steel beams to be placed—

Q. Steel beams?

A. Steel beams. I contemplated placing them as I took out the ring and work from those for a support for my concreting.

Q. In other words, in the method that you adopted in preparing your estimate you were going to leave the core in until after the permanent lining was installed in the tunnel? A. I was.

Q. What was the size of the tunnel?

A. I think it was 58 feet in width—that is my recollection of it.

Q. How high?

A. I should judge, my recollection is it was about 40 feet high; that is only approximate.

Q. Was this ground through which the tunnel was constructed self-supporting?

A. In certain localities I understand that it was.

(Testimony of Lewis Michael Larson.)

Q. When you prepared your estimate what did you consider you would encounter?

A. I thought we might find some broken ground in the side walls, pouring concrete in the side walls, and giving me the use of the steel beams for the arch would not necessitate the use of very much timber; furthermore, the grouting was to be done on the arch so as to make the ground from the arch practically self-supporting on filling in voids and bonding together the rock that might be disassociated.

Q. That was something that would be done during the construction and when the job was done you would have a solid grouting?

A. My recollection is that the grouting would be done in advance of excavation.

Q. In preparing your estimate did you assume that steel would be [720] placed by the owner or furnished by the owner for that tunnel?

A. No, I do not recall that it was; it was a bid item, that is my recollection now.

Q. As a matter of fact, in the construction of that tunnel steel beams were used from portal to portal, were they not?

A. That is my recollection.

Q. And after they were installed the concrete lining was placed in the tunnel in the space between the ring and the core was excavated? A. Yes.

Q. You did not consider that ground self-sustaining, did you?

(Testimony of Lewis Michael Larson.)

A. The way it was to be handled, yes, I would. In the first place there was grouting to be done to bond the material at the arch; the side walls I did not consider as self-sustaining; it was only in part that would be true.

Q. So your answer then would be that you considered the ground at the Yerba Buena tunnel partly self-sustaining and partly not self-sustaining?

A. That is true.

Q. If the ground was self-sustaining why were steel beams installed throughout the tunnel?

A. I think that is a question that a designing engineer only could answer; what the purpose was I could not say.

Mr. Tinning: If your Honor please, we would like to offer in evidence on behalf of the defendant a diagram, map showing the location of a number of tunnels, and I think all of the tunnels we thought of in the vicinity of San Francisco Bay. It is a diagram taken from a Government map, a photograph of a Government map, upon which we have indicated the location with approximate accuracy for the purpose of being used in connection with the testimony of this witness, and the table on the left shows the numbers which have been given to the different tunnels simply for the purpose of identification. We offer it as Defendant's Exhibit B. [721]

(The map was marked "Defendant's Exhibit B.")

[Set forth in the Book of Exhibits at page 323.]

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Q. Mr. Larson, I will ask you to look at this diagram and I will point out to you various tunnels which are in existence at the present time, and I attempt to call your attention to various tunnels which were in existence at the time that you prepared your estimate. We have just been talking about the Yerba Buena Tunnel, which is shown on the diagram, Defendant's Exhibit B, as No. 15. On the portion of the map marked San Francisco, with the number 24, is indicated the most northerly tunnel on the bay shore. Are you familiar with that tunnel? A. In a large measure, yes.

Q. How long is it, approximately?

A. Approximately 2,000 feet.

Q. About 2,000 feet? A. Yes.

Q. What type of material was that tunnel constructed through?

A. That was a broken formation.

Q. Was the tunnel which is marked here as No. 24, and I assume from what you said that would be Tunnel No. 1 on the Bay Shore? A. Yes.

Q. Was that tunnel timbered during construction? A. It was.

Q. Was the timber removed in the same way that you have described in No. 4 tunnel this morning?

A. I believe all of it was, though my contact with it is not definite enough to say all, I think it was.

(Testimony of Lewis Michael Larson.)

Q. You were generally familiar with it during construction? A. Yes.

Q. As you were working on the same project?

A. Yes.

Q. Was that tunnel driven by a full face method?

A. It was not.

Q. Was it driven in the same way that Tunnel No. 4 was driven?

A. Very much the same way.

Q. The wall construction? A. Yes.

Q. The ring advanced ahead of the excavation and the masonry and [722] brick wall?

A. Yes.

Q. No. 23 is the subway for the Ferry Building. That I do not think is comparable. A. No.

Q. No. 16 shown on this map is the Stockton street tunnel. A. Yes.

Q. Now, were you familiar with the construction of that tunnel? A. Only from hearsay.

Q. Have you a knowledge of the general conditions from your general knowledge of tunneling in this area as to whether it was in self-supporting ground? A. I believe it was not.

Q. It was built by the ring method stulling against the core?

A. A good portion of it was.

Q. Wasn't all of it?

A. I understand that they started in without doing so and got into trouble.

(Testimony of Lewis Michael Larson.)

Q. And that then they stulled against the core and put in the concrete lining?

A. I believe that is true.

Q. And thereafter removed the core?

A. That is my understanding.

Q. And the lining of that tunnel is some two and a half feet at the top and some eight and a half feet at the base?

A. That I don't know.

Q. Would you say that the Stockton street tunnel was built in Self-supporting ground?

A. I would think not, because of the improvements alongside; that has something to do with it; you do not take any risk when you have apartment houses right alongside.

Q. Is the risk a different thing than where the ground is self-supporting?

A. Yes, you have to couple the two facts together; you will take a chance on self-supporting ground with no improvements that you would not take if there are any improvements that are likely to be damaged by your oversight, if there is one.

Q. So that you are not able to say whether or not the ground under the Stockton street tunnel through which the Stockton street tunnel [723] was driven was self-supporting ground?

A. I am not in a position to say.

Q. Even though it was driven with a temporary

(Testimony of Lewis Michael Larson.)

lining stulled against the core and the concrete lining installed before the core was romoved?

A. No, because I knew the conditions that preceded it, that had an influence on it.

Q. What were the conditions that preceded it?

A. The contractor who began it had, as I understand, little experience in tunnel work, and allowed the concrete to get beyond control, and that caused what we term a fear complex to the contractor and to the City, and a different method was then adopted, that assured against any accident or unwarranted hazard.

Q. What was the method that the contractor adopted that proved unsuccessful and installed the fear in the city?

A. My understanding is that they started in much like they would in an open cut with an open face method in the beginning, without developing the ground to see whether it had self-supporting features.

Q. In other words, instead of driving drifts into the ground which is to be excavated and exploring it ahead of the excavation, they undertook a full face operation and got in trouble?

A. That is the information that has come to me.

Q. Will you please look at No. 18, shown on this diagram, Defendant's Exhibit "B", which is intended to represent the Twin Peaks Tunnel? I understood you visited that.

A. Just as they were going underground. [724]

(Testimony of Lewis Michael Larson.)

Q. You also testified, I believe, that the materials encountered in the Twin Peaks Tunnel were not self-sustaining?

A. I could not say anything about that, because I saw it only at the beginning of the work.

Q. From your general knowledge of the conditions in the Bay region, founded upon the excavations of various tunnels, would you assume the ground encountered in the Twin Peaks Tunnel was self-sustaining?

A. I would have to answer that by enlarging upon the conditions there. You have a double-track tunnel that is unusually wide.

Q. How wide, approximately?

A. I am not informed on that; but there was a curtain wall, I think, in the center, to make provisions for pedestrians to go down, at different points in the tunnel, to enter the cars; and I believe that it is separated; that curtain wall may have been a sort of safeguard against passengers attempting to go over onto the other side. This is conjectural.

Q. What would that have to do with the method used in construction?

A. It would have a tendency to separate out the width of your tunnel, and leave a flatter arch; a flatter arch would be more difficult to hold than one that had an even circle all the way around.

Q. The design that is used in that tunnel, you

(Testimony of Lewis Michael Larson.)

could assume it had some control over the methods that were necessary in driving?

A. That, and the price of lumber. The price of lumber, I think, was $8.50 a thousand.

Q. Was there a great deal of timber used in the Twin Peaks Tunnel?

A. I could not say; I really don't know.

Q. Then, how would the price affect the driving?

A. Well, it is just inference that, if you could give either timber or concrete support to it, and your material price of lumber is very cheap, the tendency to put in lumber is increased by the price of the material to be erected; and where you might feel you could take a chance on [725] that untimbered tunnel, if the timber is cheap you will put it in.

Q. But you don't know what they actually encountered there, and you did not inquire, in connection with your preparation of the bid, or other bids for tunnels in this Bay area? A. I did not.

Q. Coming over to the tunnel which is marked "17" on the diagram,—the Sunset or Duboce Tunnel,—on which you prepared an estimate: I think you testified, this morning, that you thought part of the material through which that tunnel was driven was self-supporting, and part was not?

A. That is the understanding I have.

Q. Did you see that tunnel at any time during construction? A. I did.

Q. At what stage did you see it?

(Testimony of Lewis Michael Larson.)

A. I visited it from the east end,—that is, from this end of the tunnel; and the excavation then had advanced, as I recall it, about 1,000 feet from the east portal. The concreting operation was just beginning. Because of some heavy ground that was encountered at that point, the preparations for concreting, I believe, had just been completed, and they were about to pour.

Q. Was the portion of the tunnel, which you saw, timbered throughout? A. It was.

Q. Did you ever see the tunnel after that?

A. I did not; not until after it was completed.

Q. Did you see the tunnel again after that?

A. I have seen it since it was completed.

Q. As a matter of fact, that tunnel was timbered throughout, was it not?

A. I understand that there were portions there, at least in the drifts, where no timber was required; but, later on, it was fully timbered.

Q. How was that tunnel driven; was it driven by open face?

A. Driving two wall plate drifts, and a top drift, and then the connecting part, which we term "the ring," was done in it; and then [726] the core removed,—I think, in much the same manner as the wall plate drift that I had planned for the first 720 feet of the Broadway Tunnel.

Q. It is a fact, is it not, that the timbering in that tunnel settled during construction, and it was

(Testimony of Lewis Michael Larson.)

constructed some 8 or 10 inches below the original designed grade?

A. That is my understanding.

Q. And there were many difficulties involved in the construction of that tunnel?

A. On this end,—the east end, I believe; yes.

Q. That tunnel, you stated this morning, you considered was on partly self-supporting ground and partly in non-self-supporting ground?

A. From the report that I had on the tunnel, that was my conclusion.

Q. And the difficulties that were encountered in that tunnel,—the fact that a thousand feet of tunnel had been left open, the timber had settled,—so the tunnel had to be built on a different alignment from the original design—you had all those facts in mind at the time you prepared your estimate on the Broadway Low Level Tunnel?

A. I knew, in a general way.

Q. Well, you knew, then, what you are stating now, did you not?

A. Not all; no. Since then, I have made inquiry more in detail.

Q. Tunnel No. 19 is a tunnel under Fort Mason. I think, this morning, you stated that you did not recall having any particular knowledge regarding that tunnel?

A. I have very little knowledge of that.

Q. Do you know that that tunnel was built in 1913, prior to the construction of the 1915 Exposi-

(Testimony of Lewis Michael Larson.)

tion, and freight was carried through that tunnel?

A. That was the information I had.

Q. And that a large portion of those tunnels was built through sand and clays and soft rocks?

A. I did not have the details on it. [727]

Q. And that there were difficulties with slides?

A. No; I had not information on that,—on that angle.

Q. Mr. Larson, if you cannot see what I am attempting to point out here, will you tell me?

A. Yes, I think I can see from this point.

Q. Now, going north from San Francisco, we come to two tunnels on the Marin County shore: one is the Waldo Tunnel,—which, of course, was not constructed; that was No. 21 on the diagram, and that was not constructed at the time you prepared your bid for the Broadway Low Level Tunnel? A. It was not.

Q. Did you know about that Tunnel No. 20,—the Fort Barry Tunnel,—that is located on Government reservation?

A. Not until after my association on the Broadway Tunnel.

Q. Do you know, now, whether that is built on self-sustaining material?

A. Some of it was, yes.

Q. That is a timbered tunnel, is it not?

A. I think they recently lined it with concrete.

Q. Up to three or four years ago, and for a number of years, that tunnel was a timbered tunnel?

A. Yes.

(Testimony of Lewis Michael Larson.)

Q. A narrow, vehicular tunnel? A. Yes.

Q. About the size of the old tunnel that you observed when you were inspecting this Broadway Low Level Tunnel site?

A. Very similar in size.

Q. And was supported by timbers approximately the same size, was it not?

A. Yes, excepting at the portal.

Q. How were they supported?

A. Concrete lining.

Q. There were concrete rings in either portal in the heavy ground?

A. That is my information.

Q. So, you knew about that at the time you prepared your estimate for the Broadway Low Level Tunnel?

A. No; I knew nothing about [728] this.

Q. You learned about that after. Did you have any knowledge of the tunnel between Tiburon and San Rafael? A. No; I did not.

Q. Do you know anything about it now?

A. No; I do not.

Q. You haven't paid any attention to it?

A. It is a railroad tunnel.

Q. Yes. Coming across the Bay to Contra Costa County, I will ask you if you know anything about, or knew anything about, the Santa Fe Tunnel, on the road leading from the Richmond Station down to the old ferry wharf which ran through the Potrero Hills,—the range that lies between the Bay and the City of Richmond.

(Testimony of Lewis Michael Larson.)

A. I knew nothing about it.

Q. Have you ever familiarized yourself, since you made an estimate on the Broadway Low Level Tunnel, with the conditions there?

A. Not in this tunnel you are referring to.

Q. Immediately south of the Santa Fe Tunnel that I have referred to, is the tunnel which we have designated here as Tunnel 14,—the Richmond Tunnel,—vehicular tunnel,—which carries automobiles and other vehicles through the same range of hills that the Santa Fe Tunnel takes the trains through. Were you familiar with that tunnel at the time you prepared your estimate for the Broadway Low Level Tunnel? A. I was not.

Q. Are you familiar with it now?

A. No; I cannot say I am; I have paid no attention to it.

Q. You have no knowledge with respect to it?

A. I knew there was a tunnel there; but I knew nothing about the size.

Q. Knew nothing about the method with which it was constructed?

A. I knew nothing about the methods or the formation of the material.

Q. Proceeding farther towards the east, we find a tunnel which is [729] marked "Tunnel No. 2,"—The San Pablo Water Tunnel, constructed by the Eastbay Water Company, to carry the water from the San Pablo Dam through the hills into North Berkeley. You are familiar with that tunnel, and

(Testimony of Lewis Michael Larson.)

you were when you made your estimate for the Broadway Low Level Tunnel?

A. Only what I had explained to me at the time when I went in the Claremont Tunnel.

Q. When you were in the Claremont Tunnel?

A. Yes.

Q. At the time when you were in the Claremont Tunnel, did you learn that there had been a great many difficulties encountered in construction of the San Pablo Tunnel?

A. I heard there were some; I did not know how many.

The Court: What year was that?

Mr. Tinning: The tunnel was constructed, if I remember correctly, about 1915.

Q. That tunnel is something over two miles long, is it not? A. I don't know.

Mr. Wittschen: 1918 is the correct year.

Mr. Tinning: 1918, it was constructed.

The Witness: I don't know the length of it.

Mr. Tinning: Q. You heard there had been many difficulties encountered in that tunnel, and timbering was required throughout,—heavy timbering?

A. I heard there were portions of the tunnel where there was swelling ground, and it was difficult to hold, and they had encountered gas, where some men were killed.

Q. And the timbers were crushed by the swelling ground? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. You did not consider that the area through which the San Pablo Tunnel was constructed was in self-supporting ground, did you?

A. I did not know; but I assumed a portion of it could not have been, on account of swelling ground.

Q. I will ask you to look at Tunnel No. 8, on this diagram,—[730] which is the Franklin Canyon Tunnel, of the Santa Fe—a tunnel approximately a mile long, built about 1899—one of the first large tunnels that was built through the Coast Range in the region of San Francisco Bay. Did you have any knowledge of the difficulties that were encountered and the materials met in the driving of that tunnel? A. None whatever.

Q. When you were preparing your estimate of the Broadway Tunnel, you made no inquiry regarding the history of that?

A. No. I really did not know, at the time, of the existence of that tunnel.

Q. I will show you tunnels Nos. 10 and 9, which lie—No. 10 lies on the west side of Alhambra Valley; and No. 9, on the east side, where the Santa Fe crosses Alhambra Valley. Those are two short tunnels. Were you familiar with them, when you—

A. I could not have been familiar with them; I did not even know of their existence at the time.

Q. When you were preparing your estimate on the Broadway Low Level Tunnel, did you know that Tunnel No. 11,—which is known as the Walnut

(Testimony of Lewis Michael Larson.)

Creek Tunnel, and which was constructed about 1926 or '27, on the line of the Eastbay Municipal Utility District Aqueduct—did you know about that? A. I knew, by hearsay, of it, yes.

Q. Did you ever inspect that tunnel?

A. I never did.

Q. Do you know what kind of materials were encountered there?

A. No; I do not.

Q. When you made your estimate on the Broadway Low Level Tunnel, did you know about Tunnel No. 6,—the Upper San Leandro Water Tunnel of the Eastbay Municipal Utility District?

A. I did not.

Q. And which is in the City of Oakland, and lies southerly of the Claremont Tunnel and the Broadway Tunnel and the other tunnels which lie immediately easterly of Oakland,—A tunnel somewhat over a mile [731] long?

A. No; I did not. This is the first I ever heard of that one.

Q. You did not know there were considerable difficulties encountered in driving that tunnel?

A. No; I did not know of the existence of the tunnel.

Q. Or you did not know whether that was driven in self-supporting material or not?

A. I could not know, not having known of the existence of the tunnel.

(Testimony of Lewis Michael Larson.)

Q. Did you know of Tunnel No. 5,—which is marked here as the Shepard Canyon Tunnel—the tunnel now used by the Sacramento Short Line,—a tunnel that was built through the hills about a mile southerly of the Broadway Tunnel, in 1911 or 1912, when the Oakland and Antioch Electric Line was constructed?

A. I knew of the existence of the tunnel, yes.

Q. When you were making your estimate of the Broadway Low Level Tunnel, did you make any examination of that Sacramento Short Line Tunnel? A. I did not.

Q. So, when you prepared your bid, you did not know that that had caused many difficulties in its construction; a number of men were killed; slides occurred?

A. I knew very little about the difficulties that were encountered.

Q. Did you know that timbering was used throughout the tunnel? A. I did not.

Q. Did you know that they had a slide near the west portal, which extended to the surface and required some 50 or 60 cords of wood to fill up the face of the void above the top of the tunnel?

A. I did not.

Q. When you prepared your estimate of the Broadway Low Level Tunnel, did you have in mind the material encountered in the Lafayette Tunnel

(Testimony of Lewis Michael Larson.)

of the Eastbay Municipal Utility District,—Tunnel No. 4? [732] A. Only in part.

Q. You were in charge of the work in the Claremont Tunnel,—which is shown as Tunnel No. 3 on this map? A. Yes.

Q. The Lafayette Tunnel was constructed contemporaneously with the tunnel on which you were working? A. It was.

Q. But you don't know what materials were encountered in that tunnel?

A. I knew some, yes.

Q. Well, generally, were the materials self-sustaining or not? I am referring to No. 4,—the Lafayette Tunnel?

A. Well, for a period of time, and in different parts of the tunnel.

Q. By that, do you mean a period of time shortly after excavation the material stood without support, and then, as time lapsed, began to require support?

A. That was my understanding.

Q. And the support that you understood, Mr. Larson,—to make it clear,—was support not to prevent the falling of rocks on the men who were working in the tunnel, but to maintain the integrity of the tunnel structure?

A. In part, yes; in fact, mostly so; but I also understood that material there was a softer material than the Orindan encountered in the Clarement Tunnel.

(Testimony of Lewis Michael Larson.)

Q. What kind of material was the Lafayette Tunnel driven through?

A. The major portion, I am told, was through the Orindan. I did not visit very often; I did not see very much of the tunnel.

Q. But that was your understanding: that it was an Orindan that was softer than you found in the Claremont Tunnel?

A. That was the information I had.

Q. You had that information when you prepared your bid on the Broadway Low Level Tunnel? A. I did; I knew of that.

Q. Tunnel No. 3, shown on Defendant's "B",—the Claremont Tunnel: that tunnel is a tunnel for which you prepared a bid for one man who was not successful; and you prepared an estimate, or a bid, [733] thereafter, for the successful contractor? A. Correct.

Q. You were in charge of that tunnel in 1926, May or June, I believe you said, and until the fall of 1929? A. Yes.

Mr. Marrin: Mr. Tinning, may I clear that up? I understood Mr. Larson's testimony to be that he prepared it for a contractor who was not at first successful and thereafter was the low bidder.

Mr. Tinning: I am not trying to make a point of it. I was just trying to ask about the testimony, because I have no notes.

Mr. Marrin: I see.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Q. My understanding of that was you prepared an estimate for one man, and he did not get the contract; and that, later, you went to work for Greer and Meade, as their tunnel superintendent in that construction, and remained in that capacity throughout? A. That is correct.

Q. I thought you mentioned Lindgren and Swinnerton? A. Twohy Brothers.

Q. Twohy Brothers? A. Yes.

Q. Before leaving the diagram, there is one other tunnel here that I would like to direct your attention to,—No. 7: the old Highway Tunnel. That is the tunnel you passed through when you were making your inspection of the ground,—the surface conditions surrounding the Broadway Low Level Tunnel? A. Yes.

Q. No. 7. As a matter of fact, when you were building the Claremont Tunnel, in that approximately three-year period, you passed through the old tunnel on many occasions, did you not?

A. I did.

Q. You were already very familiar with that tunnel? A. Reasonably so, yes.

Q. During the same time you were employed on the Claremont Tunnel—By the way, that was driven from both ends, was it not? A. It was.

Q. So, you had to travel from the westerly end to the easterly end [734] frequently, in your work, before the tunnel was holed through?

(Testimony of Lewis Michael Larson.)

A. Well, not before the tunnel was holed through. I was watching the west end excavation, but, after—there was 6000 feet of work—5000 feet of that tunnel driven from the end that I had nothing to with the driving of—but, later on, after the tunnel was driven through, I had occasion to go over there to do some reinforcing work in the tunnel; and that took me frequently through the old tunnel.

Q. Did you, when you were travelling back and forth, in connection with your work, between 1926 and 1929, also use the Fish Ranch Road?

A. I believe, very little. I may have made one or two trips over it.

Q. It was not your usual route?

A. No, no.

Q. The Claremont Tunnel and the Lafayette Tunnel were of substantially the same size and type of construction, were they not?

A. A difference of a foot, I think, in diameter.

Q. The Lafayette Tunnel was a foot larger than the Claremont? A. I think, the reverse.

Q. Smaller?

A. That is my understanding.

Q. They were both water tunnels? A. Yes.

Q. Both lined with concrete and with what we call an invert—they had a horseshoe shape above, and that was closed by a semicircle below?

A. I believe that is true, yes.

Q. I think you said the diameter. Both height and width of the finished Claremont Tunnel were 9 feet? A. That is correct.

(Testimony of Lewis Michael Larson.)

Q. And the excavation was 12 feet?

A. Approximately.

Q. This old tunnel that you testified about, and you have described in your earlier testimony, the old Highway Tunnel, between Contra Costa County and Alameda County, is how big?

A. I would estimate it to be about 16 feet wide; might be a little wider—about 12 to [735] 15 feet high; probably around 14 feet high.

Q. Well, I have made inquiry, and I think your memory is quite accurate. You would not say the figure was wrong, of 17½ feet in the clear, inside, between the timbers? A. No; I wouldn't.

Q. And 15½ feet high? It is certainly very close to your memory. Now, the timbering in this tunnel was 12 by 12. You recollect that?

A. I am not sure whether 12 by 12 or 10 by 10.

Q. As you drove through there, you noticed that these timbers were, in some places near the portals, somewhat distorted by the surface pressures in the surface of the ground, as you got into the interior of the tunnel; and the materials seemed to be standing well, and the timbers, you thought, were the same timbers that were installed in 1903 or 1904? A. That was my conclusion.

Q. From what you were able to observe and from any inquiry that you made?

A. Just my observation.

Q. You made no inquiries to ascertain if there had even been slides, in that tunnel, in which timbering had broken and people had been injured?

(Testimony of Lewis Michael Larson.)

A. I did not.

Q. Were you able to see that there had been a number of timbers replaced in that tunnel?

A. Near the portals, only.

Q. Near the portals. In the center portion of the tunnel, so far as you were able to observe, and in the formation which you said was the chert, you were unable to observe any retimbering?

A. I could not see that there had been anything done in the way of retimbering in that tunnel.

Q. How far apart were those timbers in there?

A. I estimate them to be 4 feet. I am not sure my estimate is correct.

Q. In that tunnel, as you passed through it, did you observe anything to indicate that there had been trouble, by water?

A. Not in the major portion of the tunnel; only at the portals. [736]

Q. What do you consider the portal; how far from the portal would you say falls within that definition?

A. Well, that portion of the tunnel that is effected by operations within, where the result of excavation might influence the structure there; and its extreme limit, I should say, probably is from 30 to 50 feet, depending on which end you are speaking of.

Q. Well, if there is a difference between the ends, please tell me; if you consider one end is a

(Testimony of Lewis Michael Larson.)

greater portion of a tunnel, or if you did consider more of a portion on one end than the other.

A. I would think the weakest portion of this tunnel would be the east end.

Q. Where the overburden is light, and where it is in the Orindan?

A. Well, yes; but probably fractured. Well, I am not sure that that is Orindan, by the way, on that end.

Q. How many feet, on the westerly end of the tunnel, would you consider within the portal area?

A. Approximately 40—between 30 and 40.

Q. Between 30 and 40?

A. Yes; that is a rough estimate.

Q. This Broadway Low Level Tunnel is built in close proximity to the—300 feet below the old tunnel that we have just been referring to? A. Yes.

Q. And the timbers used in the temporary support of the Broadway Low Level Tunnel were of the same cross-section—12 by 12—as the timbers in the old tunnel, were they not?

A. The timbers in the Broadway Tunnel were 12 by 12. If you are sure the timbers in the old tunnel were 12 by 12, I would agree with you.

Q. Well, I think it is, Mr. Larson.

The Court: We will take a recess now.

(Recess) [737]

(After recess:)

Mr. Tinning: Q. Mr. Larson, when you were inspecting this tunnel, the old highway tunnel, did

(Testimony of Lewis Michael Larson.)

you know how that tunel was driven, whether it was driven by the full face method or the wall plate method, or what method was used?

A. I have no knowledge of how it was driven.

Q. Would it have made any difference in your opinion that you formed as to the material through which it was driven if you knew that that tunnel was driven with a crown or top drift, and a bench against which arch timbers are supported by stulls until the plumb posts or vertical timbers were placed under the outer end of the segments?

A. It would not, because I relied on the geologist's report on its being self-supporting ground, consequently I would ignore that fact as sometimes the notion of, and often times that of an inexperienced tunnel man, you cannot judge that the method he used was the proper method and say you could follow the same method.

Q. Do I understand that your opinion as to the ground which was to be encountered in the Broadway Low Level Tunnel was formed from the geologist's report and that likewise that your opinion as to the ground that actually you could see in the old tunnel was formed from the geologist's report?

A. My observation of the ground in the old tunnel and my study of the general conditions, physical conditions there, was, I could not find anything that caused me to conclude that the geologist was wrong in his report.

Q. But his report did not refer particularly to the old tunnel, did it?

(Testimony of Lewis Michael Larson.)

A. It referred to the ground that was anticipated would be found in the new project.

Q. In the project for which you were preparing an estimate?

A. Yes, and that was covered by his report, and it was his report [738] that I relied on.

Q. Now, we are discussing the old tunnel of which you made a visual examination, and which you said previously in your testimony led you to believe that the material to be encountered in the new tunnel would be similar to that in the old tunnel.

A. That as I understood the geologist to say that same body of material, that is, the same cherts, would be encountered as is in the old tunnel; in that respect I felt that we could look for a cherts formation, and the self-sustaining quality of it I judged from what Dr. Louderback said in his report.

Q. In other words, you assumed from Dr. Louderback's report that the cherts that you might encounter in driving the new project would be similar in character and standing qualities to that which you discovered in the old tunnel?

A. No, that would be a misinterpretation of his report, I think.

Q. What did you assume then, Mr. Larson?

A. I assumed that the major portion of the cherts and the orindan, as he states in his conclusion, which was the definition of his previous re-

(Testimony of Lewis Michael Larson.)

marks—that the major portion of the tunnel, particularly as he emphasizes the cherts and the orindan formation would be self-supporting.

Q. I think we are talking about different things. I am asking you what you assumed by reason of your inspection of the old tunnel.

A. That there was no reason to change or doubt the conclusions that the geologist made regarding the material to be encountered in the Broadway tunnel.

Q. Did you regard the ground, the rock through which the old tunnel was constructed, as self-sustaining?

A. I had not formed any definite conclusion as to whether or not it was self-sustaining; that did not enter my mind at the time.

Q. Do you now consider that the material through which the old [739] tunnel was driven was self-sustaining?

A. I could not answer that, frankly.

Q. You used your observation of those materials as a basis for arriving at a conclusion, one of the bases for arriving at your conclusion as to what it would be proper to bid on a tunnel on a project of three and a half million dollars or more?

Mr. Smith: Not three and a half million, but two million.

Mr. Tinning: Q. Did you not form any opinion as to whether or not the material through which the old tunnel was driven was self-sustaining material?

(Testimony of Lewis Michael Larson.)

A. I did not view it in that light. I viewed it in this light, that I would encounter a cherts, and experience teaches underground men that generally the deeper you go into a formation the more self-supporting the material is, and since I had the authority of the geologist, whose opinion in that territory particularly should be as elaborate and sure of being a right conclusion as any that we could possibly get, I could see no reason for changing the thought that he had advanced in his report, after observing the old tunnel.

Q. And your connecting the two was then that the conditions that you observed in the old tunnel were such, coupled with the fact that you were going through a similar material at a deeper level, that these similar materials would be stronger at the lower elevation than they were in the old tunnel?

A. I had a right to conclude that from the geologist's report.

Q. At any rate, you did so conclude?

A. I did so conclude.

Q. Mr. Larson, I show you a photograph—this is one of 12 photographs which were taken of the old tunnel on the 15th of April, last Friday afternoon, and I will ask you if that is a fair representation of the conditions which you saw there when you inspected that tunnel three or four years ago?

A. Might I ask [740] where that is?

Q. That is the westerly portal looking toward the east.

(Testimony of Lewis Michael Larson.)

A. This is the west portal. I think the timbering, as I remember it, was slightly more distorted in the immediate vicinity of the portal, not the batter posts on the outside, but these segments.

Q. I show you a photograph, numbered 2, and ask you if that is a fair representation taken from the north looking toward the south—that would be looking toward the right-hand wall of the tunnel as you go east at the entrance.

A. At the west portal?

Q. Yes. A. I think it is.

Q. I show you a photograph, numbered 3—does it bother you to hold these? A. Not at all.

Q. Which is taken looking at the left-hand or the north wall at the west portal of the old tunnel and ask you if that appears to be a fair representation of the conditions as you saw them in 1934 when you inspected the tunnel?

A. I think so. I notice the timbers here are rotted off, showing they had been there for many years.

Q. I show you photograph No. 4, which is taken from a position inside of the west portal about ten feet looking toward the east and ask you——

Mr. Smith: We will state the situation as we understand it; in 1935, shortly after the slide occurred in the Broadway Low Level Tunnel there was a considerable amount of work in the east portal of this tunnel by Contra Costa County under a contract, and no portion of that work is shown in these photographs.

(Testimony of Lewis Michael Larson.)

(Thereupon a recess was taken while the Grand Jury reported.)

Mr. Tinning: I will continue with the statement. The photographs that I propose to offer here do not represent any portion of the re-timbering which has been done since 1934, so far as I know, and they [741] do not represent any portion of the work that was done in 1935, under a contract with Contra Costa County. If you will look at Photograph No. 4 I have just handed you, there appears to have been some retimbering done in there which I think is some maintenance work near the portal, and within a distance of 30 or 40 feet of the west portal, which was in the area that Mr. Larson stated that he had seen.

Mr. Smith: The only reason I called it to your attention is that the witness should know that it was not intended by you that these pictures were given to him as representative of the conditions existing at the time he went up there, before he made an estimate on the project in 1934, and the fact that the pictures were taken last Friday, that there has been considerable work done on it.

Mr. Tinning: I think I so stated in all my questions, if it was substantially representative of conditions as he found them, and it is only for that purpose.

Mr. Smith: That is all right.

Mr. Tinning: You have seen photographs 1, 2 and 3, and we were just asking you about 4.

(Testimony of Lewis Michael Larson.)

A. Yes, this illustrates the distorted condition of the arch timbers that I spoke of in my previous testimony. They are at a point of almost collapse, and yet at the same time nothing is being done about it which would indicate that the structures did not require much support.

Q. This area which you say did not require much support is in an area near the west portal?

A. It is where the conditions are more difficult than they will be further in the tunnel.

Mr. Smith: You are going to offer the whole group as one exhibit?

Mr. Tinning: Yes, the twelve photographs. [742]

Q. If you will look at the top of the tunnel you will notice that the number of segments in the ring changes from a three-segment ring to a four-segment ring, and apparently as you go east in the tunnel that four-segment ring is maintained as a type of arch to at least as far as the other portal, to where they take up again a portal structure: Is that your memory? A. Substantially.

Q. I show you a photograph taken on April 15, 1938, looking east away from the west portal along the south wall of the tunnel, taken 75 feet in, east of the west portal of the tunnel, and ask you if that represents the conditions in the tunnel substantially as they were when you inspected it in 1934?

Mr. Wittschen: For the sake of the record will you give the number of that photograph?

Mr. Tinning: That is No. 5, Mr. Wittschen.

(Testimony of Lewis Michael Larson.)

The Witness: I think it is at this particular point.

Q. I show you photograph No. 6, Mr. Larson, which was taken at a point 75 feet inside the west portal, looking toward the west, and ask you if that represents, in your opinion, a fair representation of conditions in the tunnel as they were when you inspected it in 1934?

A. I think it does. Of course, we are now speaking of a permanent timbering aspect where the operation is to be maintained year after year with timbers. I think that point should be emphasized.

Q. Well, at this time I am trying to learn from you whether you think that photograph No. 6 correctly represents the conditions as you saw them, or substantially represents the conditions as you saw them in 1934 when you inspected this tunnel.

A. I believe it does.

Q. I show you photograph No. 7, taken at a point 190 feet east of the west portal looking toward the westerly portal of the tunnel. [743] The photograph shows the south or left wall. Does that represent timbering in the tunnel substantially as you saw it in 1934?

A. In so far as I can tell from a photograph I would say yes.

Q. I show you photograph No. 8, which is taken 430 feet east of the west portal, the camera being approximately at a point on the north side of the tunnel, and I will ask you if that photograph repre-

(Testimony of Lewis Michael Larson.)

sents the conditions in the tunnel substantially as they were in 1934 when you inspected it?

A. I think I remember that particular point there, because there had been no maintenance work done, apparently, in the last 30 years in spite of the pressure as that had become evident at that time.

The Court: Tell me, is the arch here, are the timbers there?

Mr. Tinning: Yes, your Honor.

The Witness: That is a four-foot spacing, isn't it?

Mr. Tinning: I think so, yes. Especially in the center of the tunnel it seems to be. Our measurement indicates they are four-foot centers.

Q. I show you photograph No. 9, Mr. Larson, which is a photograph taken on April 15th, the same point as the preceding one, No. 8, 430 feet from the west portal, looking at the south side of the tunnel, and a view of the opposite side of the same portion of the tunnel that you were looking at in the previous view. Does that substantially represent conditions as you saw them in 1934?

A. I believe it does at that particular point.

The Court: That is to say 8 and 9 are opposite each other in the tunnel at that particular point?

Mr. Tinning: Yes, your Honor.

Q. I show you photograph No. 10, Mr. Larson, which was taken at a point 630 feet east of the west portal, and is a view of the south side of the tunnel. Would you say that that is a fair [744] representa-

(Testimony of Lewis Michael Larson.)

tion of conditions as you saw them in 1934 in the tunnel?

A. At that particular point, yes.

Q. At that particular point, yes. I show you photograph No. 11 taken April 15th, 1938, at a point 505 feet from the west portal of the tunnel looking easterly along the north wall.

Mr. Smith: East of the west portal, but looking east.

Mr. Tinning: Looking east. I ask you if you consider that photograph a fair representation of the conditions that you saw in the tunnel at that point in 1934?

A. I don't see any retimbering done, so I assume that to be the case; apparently it is.

Q. Well, what we had in mind in taking this photograph, Mr. Larson, was the apparent displacement or movement in the seven timbers down or away from the camera.

A. Of course, I have no knowledge whether that is a shift or whether they were placed in that position, and if a shift, nothing had been done about it in thirty years is evident.

Q. Well, I don't know anything about that, either. What I have in mind is just this fact, does it represent——

A. I believe it is a fair representation, yes.

Q. I show you photograph No. 12 which is taken with the camera 680 feet east of the west portal, looking at the south side of the tunnel, and it shows

(Testimony of Lewis Michael Larson,)

in this photograph the considerable spaces between the timbers and the rocks. Is that photograph, in your opinion, a fair representation of conditions as you saw them in the tunnel in 1934?

A. Yes. I note particularly the wall spaces in many places. I think it is a fair representation.

Q. You note the over-break?

A. Yes, but maybe careless shooting, I cannot tell.

Mr. Tinning: If your Honor please, we will offer in behalf of the defendant, as Defendant's Exhibit C, the 12 photographs we have just shown to Mr. Larson, the photographs being 12 in [745] number, and numbered 1 to 12.

The Court: How long was the tunnel?

Mr. Tinning: About 1300 feet, your Honor.

The Court: This was 680 feet, you say?

Mr. Tinning: 600 feet on the west end.

The Court: What is that, an opening there?

Mr. Tinning: Yes. That is where the timbers are standing without support from the rocks.

The Court: What about this?

Mr. Tinning: That is a flashlight picture of the tunnel.

The Court: You see how I was misled.

Mr. Smith: I thought that was an opening, too.

The Court: There are some distortions on these photographs. I don't say it is wilful.

Mr. Tinning: I made an offer, your Honor. I think there is no objection. It is simply demonstrative.

(Testimony of Lewis Michael Larson.)

The Court: They will be admitted and marked.

(The photographs were marked "Defendant's Exhibit C.")

[Set forth in the Book of Exhibits at page 324.]

Mr. Tinning: Your Honor, I made a mistake in figures. The tunnel is 1040 feet long.

The Court: I got misled on it.

Mr. Tinning: Q. Mr. Larson, it is a fact that near the portal of this old tunnel and for a considerable distance toward the east from the west portal, and toward the west from the east portal, that timbers are placed much closer than four feet, is it not?

A. Yes. That is customary near portals.

Q. Yes. That is a fact in this tunnel.

A. I believe it is a fact in this tunnel.

Q. And the timbers, now that we have seen the photographs, you have no difficulty in determining these timbers are 12 by 12 [746] timbers?

A. I believe them to be, yes.

Q. When you commenced to prepare your estimate for the Claremont Tunnel for Twohy Bros. did you go in the field?

A. I made one visit to the portals of the tunnel, proposed portals of the tunnel, but I relied there again on the geological report.

Q. Whose geological report did you rely on?

A. Hulin.

Q. The Hulin geological report?

A. Yes. Dr. Louderback told me he had appointed Hulin to look after that.

(Testimony of Lewis Michael Larson.)

Q. You knew Dr. Louderback at that time?

A. I knew Dr. Louderback shortly after I went to work on the tunnel.

Q. So that at the time you read the Hulin report you were not familiar that he was vouched for, or appointed to this work upon Dr. Louderback's suggestion?

A. I learned that from Dr. Louderback later on.

Q. Did you read the Hulin report on the geology of the Claremont tunnel before you prepared an estimate? A. I did.

Q. Did that report predict any swellings or heavy ground?

A. I don't recall that it spoke of swelling ground. It spoke of the different formations that would be encountered beginning at the west portal, and I want to remark here that it was remarkably accurate as to the changes, at the points where changes might occur, where uplifts would fracture the formation. In fact, it was a very accurate report, as I recall it.

Q. The Hulin report, then, was very accurate as to where you would pass from one formation into another?

A. That is my recollection, it was.

Q. And that it was also accurate as to where you saw uplifts, that is where some other structure passes up, or came up into the line of the tunnel?

A. As I understand it, the uplift, for example, at the farthest faulted line, the San—I have [747] forgotten the name of that now, he spoke of a

(Testimony of Lewis Michael Larson.)

vertical uplift of 150 feet. To me that meant just that, a vertical uplift, and where we would likely find a fault.

The Court: What do you mean by an uplift?

A. Where one side is stationary and the other one is raised.

The Court: Two different formations?

A. Well, yes. We will say it is like in this position by nature, and something causes one side to rise up vertically.

Mr. Tinning: Q. And his report was remarkably accurate in the prediction of the points at which you would find uplifts and where you would pass from one formation into another?

A. With some exceptions, but in the Orindan and in the cherts that was particularly true. On the west end he spoke of the Franciscan formation for a certain distance. Then we passed into Chico sandstone. Now, there was an intermediate formation in there that no one had anticipated, an old river bed, and then from that into a serpentine, and I believe that was not anticipated by Hulin. He mentioned, however, in his preliminary report, that that section of the tunnel was so covered with improvements and buildings that it was difficult for him to make an accurate estimate.

Q. What was the second formation? You said Chico sandstone and then Franciscan.

A. Franciscan sandstone, and then the Chico sandstone, none of which were anticipated for the

(Testimony of Lewis Michael Larson.)

Broadway Tunnel, so we have to exclude that in our preparation. Then we ran into cherts, which we anticipated to find in the Broadway tunnel, and in that Orindan which we anticipated, and then we ran into a lava in the Hulin report that it was anticipated would not exist in the Broadway tunnel, so we had only two formations that were comparable; that was the Orindan and the cherts.

Q. Claremont cherts in both tunnels?

A. I think Dr. Louderback [748] called them Claremont cherts.

Q. In the Claremont tunnel did you strike the Claremont cherts at the point—let me withdraw that. How far from the point predicted by Professor Hulin did you actually encounter the Claremont cherts when you were driving the tunnel?

A. I think it was very close. I could not tell you in regard to the exact feet, but my recollection is now it was very near the point. There was some little mistake in stationing and I have forgotten.

Q. What do you mean by "very close"? Would you say 500 feet?

A. Oh, no. I think it was within 100 feet, or 50 feet, probably.

Q. Within 50 feet or 100 feet?

A. Yes, that would be the extreme. I am speaking now of the cherts and the orindan.

Q. The Hulin report indicated to you, did it not, that you would require substantial support in driving the Claremont tunnel?

A. In certain localities.

(Testimony of Lewis Michael Larson.)

Q. Was there any place in the tunnel where the report indicated that you would not require tunnel timbering?

A. My memory on that—my recollection on that is not clear.

Q. Well, do you recollect when you made your estimate whether you figured on any place that you would not require timbering?

A. No. The way I estimated that was that in the plans we were furnished the timbering was stated, the size of the timbering, and the spacing of the timbering, and we were to bid on the placing of those timbers at that spacing, with timbers of that size. As I recall it, there was no designation as to distance that those timbers might go, whether clear through the tunnel or through only a portion of the tunnel. My memory is not clear on that.

Q. Well, in making up your estimate did you assume that timbering would not be required in any portion of the Claremont tunnel? [749]

A. I am not clear on that. I am not sure that I did know.

Q. As a matter of fact, it was required throughout the tunnel, was it not?

A. It was used throughout the tunnel, but not really required in the cherts. If I had known as much about the cherts as I learned after penetrating it I could have left the timbers out except at the fault line.

(Testimony of Lewis Michael Larson.)

Q. How many feet of cherts did you encounter in the Claremont tunnel?

A. My recollection is 1055 feet.

Q. What was the characteristic of that material with respect to requiring support?

A. When entering it we ran into what was termed wildcat fault, that was underneath. We moved through a considerable flow of water. Anticipating that possible trouble I had connected the invert up not to have a soft bottom to operate trains on, and also anticipating possible trouble from oil and gas that the Hulin report indicated might be encountered, I had taken the precaution of putting in about 170 feet of completed rings as a firebreak in case of fire that should develop in the cherts section. When the cherts section was penetrated for a depth of about 120 feet we ran out, as I recall it, of the major trouble in the cherts. We had some difficulty in penetrating it on account of the amount of water. We drove our spiling rather carefully and, as I recall it, traveled through this less soft material and later on it developed when we got to the fault zone that it could be pulled, the wedges could be pulled with your fingers, the wedges that were lying between the places at the corner of the segment and the segment, itself, just to determine whether or not weight came from cherts.

Q. This 125 feet of rings that you installed, was

(Testimony of Lewis Michael Larson.)

that installed in the broken material encountered as you passed through the wildcat fault?

A. No. That was when I knew I was coming to [750] the fault.

Q. That was in the Chico sandstone?

A. Yes.

Q. I mean in regard to the broken area, the broken material which you encountered as you passed through Wildcat fault.

A. I drove in spiling and in some places where necessary I did breastboarding.

Q. In other words, you had a broken material which you faced that you had to use breastboarding to handle the material?

A. Yes. That was particularly true on account of the bad formation that we encountered.

Q. How much water did you have in the tunnel, in this 12 by 12 drift tunnel that you had at this point when you passed out to the end of the cherts?

A. Dr. Louderback, in the geological report——

Q. How much did you have? What quantity of water per minute in gallons?

A. 700 gallons, according to the geological report of Dr. Louderback, on the Broadway Tunnel. He refers back to that.

Q. Did you take any measurement? You are referring now to Dr. Louderback's geological report, which is in evidence.

Mr. Smith: The witness says that the report——

Mr. Tinning: Of course, we are not asking him what the report says.

(Testimony of Lewis Michael Larson.)

The Witness: The district had a weir outside the tunnel where measurement was made on the amount of water. That weir, the District Engineer told me later on, was about 20 per cent. below accuracy. Whether Dr. Louderback took his 700 gallons—that would be the basis of my information, it would have to come from that weir, I have no note at the present time.

Q. Well, how much flow is 700 gallons a minute, how much flow would that give you on the bottom of the tunnel?

A. The invert—I think, possibly 10 inches over the invert was the flow. That is approximate and only an estimate. [751]

Q. Did that mean your tracks were covered by water 10 inches in height?

A. It should be about the top of the rails, in the invert,—where the invert was placed; but, of course, considerably over the rails where there was no invert.

Q. How close were those timbers placed in this area where you were driving the spiling and supporting the roof and sides against this loose material and water?

A. My recollection is 6 feet.

Q. 6 feet?

A. That is my recollection.

Q. Did you have any crushed timbers there, after you set your first sets?

(Testimony of Lewis Michael Larson.)

A. I have a recollection of not going through, that weight, on the timber.

Q. No weight even in that broken area?

A. I was afraid I was going to have weight; and I watched it very closely.

Q. Did you encounter any considerable flow of water in the driving of the timbers?

A. After I passed through the chert, I came into the orindan; I left the orindan, and came into the lava; and, in the lava, I had a very considerable amount.

Q. When you were in the orindan, what kind of conditions did you encounter?

A. Dry and very dusty; and in portions where the silt—as I have observed it, where the deposit, in flood times, in either rivers or lakes, comes—when this dries, it cracks wide open, in that mud portion; and in the other portion, where willows grow, it is a sort of gravel, and that is the conglomerate portion of the orindan.

Q. Do I understand that this material, then, is in layers, in varying thicknesses, where you have these clays, or what you say is mud, usually the mud dries and then you find gravel, and the layers, otherwise, alternate as you go through the material?

A. That was the condition,—running through a layer of probably clay and silt; then you would run into gravel, and so many other [752] materials in it, it caused a conglomerate mass; and then into some more of the other gossan.

(Testimony of Lewis Michael Larson.)

Q. Did these materials stand well?

A. Very well.

Q. Did you have to use timbers on them?

A. I did, as a precaution to the workmen, who were likely to be injured by spalls falling off. There would have been no need for it in the conglomerate sections, as I later observed.

Q. How thick was that section of this mud, as you call it?

A. My recollection is it varied,—75 to 100 feet; and then, 50 to 75 feet of the conglomerate; and then back into the other; probably varied about 100 feet.

Q. Were those layers, when you encountered what you call dry mud—was that a homogeneous layer,—all of the same material for 100 feet, or 50 feet, or whatever it might be?

A. As near as I could observe, it was.

Q. When you got into the gravel, what you call this cemented material—the conglomerate—was that also homogeneous?

A. As I observed it, yes.

Q. In the Claremont?

A. Yes.

Q. When you got into the lava, what did you encounter?

A. I encountered a usual broken formation that you find in lava rock,—a soft, easy-drilling rock; and in this particular case, it carried a great quantity of water.

(Testimony of Lewis Michael Larson.)

Q. What quantity of water did you encounter in that tunnel?

A. I think the weir I spoke about recorded 4,000 gallons per minute, or a little bit better. I would say it would be about 5,000 gallons per minute, all told.

Q. What kind of a stream flow did that give you on the bottom of the tunnel? [753]

A. The motors that we used,—five-ton motors,—when they would be going against the current, the men riding on the motors had to raise their feet up on top of the motor, in order to clear and keep them from being washed by the water. In going out of the tunnel, with the direction of the flow toward the west portal and downstream, of course the water would reach up and cover the wheels for about 18 inches.

Q. In other words, you would have, above the tracks, water somewhere in the vicinity of 18 inches or so?

A. That is my guess.

Q. What grade was the tunnel on?

A. .00076.

The Court: We will take an adjournment until tomorrow morning.

(Thereupon, an adjournment was taken until Wednesday, April 20, 1938, at 10 o'clock a. m.) [754]

(Testimony of Lewis Michael Larson.)

Wednesday, April 20, 1938

Mr. Marrin: If your Honor please, on page 289 of the transcript of the proceedings of yesterday there appears this ruling:

"The Court: As a legal matter I will sustain the objection, the objection is good,"

and no exception appears to be noted in the transcript.

The Court: At what point was that?

Mr. Marrin: That is when we were talking about the admission of a recast which Mr. Orselli made of the Larson estimate.

The Court: If my memory serves me I indicated that I would sustain the objection at this time.

Mr. Marrin: That is correct.

Mr. Wittschen: I would suggest that the record show that Mr. Marrin took an exception to the ruling.

The Court: I made the ruling, if my memory serves me, that I would sustain the objection at this time. Is that disclosed in the record?

Mr. Marrin: I think it is.

The Court: I want to know. I have a definite state of mind. I want both sides to have a record on any disputed point. Read the record.

(Thereupon counsel read the record.)

The Court: That is sufficient. That is the reason I said I would sustain the objection at this time. You may renew your offer at any other time that you see fit, and at that time I shall consider it. That

(Testimony of Lewis Michael Larson.)

is what I had in mind at that time when I used the language "I sustain the objection at this time," that it would not preclude you at any future time you saw fit when you develop the facts to make any offer.

Mr. Marrin: The only point I had in mind is the first time [755] your Honor ruled on the matter the record does not show we note an exception.

The Court: All right, let the record note an exception.

Mr. Alexander: May we also on behalf of the Cross-complainant note an exception?

The Court: Very well, let the record note an exception in both instances.

LEWIS MICHAEL LARSON,

Cross Examination (Resumed)

Mr. Tinning: Q. Mr. Larson, going back to the Claremont Tunnel, in the preparation of your estimate you said that you made one visit to the site of the tunnel, as I understand it. Is that the fact?

A. That is my recollection.

Q. And only one visit?

A. I recall only one, as there were just a few portals that were visible, portal locations.

Q. Did you at the time you prepared your bid have available for your use a copy of the geological report of Mr. Hulin, that you referred to?

A. It is my recollection that I had that.

(Testimony of Lewis Michael Larson.)

Q. Including the maps attached to it, profiles of the tunnel, showing the formation?

A. I believe I had, that is my recollection.

Q. Was there any mention made of those in the specifications?

A. I could not say definitely "Yes" or "No" to that question.

Q. I believe you said yesterday that to the best of your recollection the Hulin report did not predict heavy or swelling ground.

A. That is to the best of my memory.

Q. Did you consider you were misled by the Hulin report?

A. Well, possibly, but my estimate not having been used, or not being the one that landed the bid, I thought that would be immaterial. [756]

Q. Well, the question now is not whether it was material, but were you misled by the Hulin report?

A. I rather think that the developments later on would lead me to believe that the Hulin report did not cover all the difficulties that might be anticipated, in fact I think it minimized the difficulties.

Q. Now, is it your present statement, then, that you were misled by the Hulin report?

A. I think it would be better stated, that I did not comprehend all the difficulties from having read that report, that the report, itself, was not comprehensive enough to go into all the details; it went into many of them, some of which I believe varied slightly from what was predicted by Mr. Hulin, but others quite materially.

(Testimony of Lewis Michael Larson.)

Q. Yesterday you stated that it was a remarkably accurate report.

A. As to location of changed formation.

Q. And that it was accurate to the best of your recollection within the limits of 50 to 100 feet in its prediction at what place you would pass from one formation to another?

A. That is my recollection.

Q. Did the man who built that tunnel abandon the work because the Hulin geological report was misleading?

A. He did not abandon it for any reason.

Q. He completed it?

A. He completed it.

Q. And he met the difficulties which you say were not outlined in the geological report?

A. He met any difficulties that developed.

Q. When you were preparing this bid did you consult the chief engineer of the district, Mr. Davis?

A. I did not.

Q. When you were preparing this bid did you consult F. W. Hanna, the designing engineer of the East Bay Municipal Utility District?

A. I did not.

Q. When you were preparing this bid did you consult Mr. Munn, the [757] engineer in charge of the work?

A. Not at that time.

Q. Not until after the contract?

A. No.

(Testimony of Lewis Michael Larson.)

Q. In other words, in preparing that bid you had the specifications, the geological report, and your general knowledge of tunnels gained by your years of experience?

A. That is true.

Q. And at this time you cannot tell us whether you were misled by Mr. Hulin's report or not when you prepared that bid?

A. I think the use of the word "misleading" does not quite carry the thought that I had in mind; any report, if you run to the point of splitting hairs, you might say is misleading one way or the other; in general, the difficulties that were encountered were greater than those that I had drawn the conclusion would be encountered from reading the report, the Hulin report.

Q. A few moments ago you said that a man must be able to comprehend the report when he read it; that is true, is it not?

A. That is a matter of degree, again.

Q. Of experience?

A. Yes.

Q. Were there any drifts or test holes or borings at the site of the Claremont Tunnel?

A. No, not that I have any recollection of.

Q. When you were preparing your bid did you examine the cherts outcrop of the Fish Ranch Road which you examined when you were preparing your bid for the Broadway tunnel?

(Testimony of Lewis Michael Larson.)

A. At that time I did not know of this outcrop on the Fish Ranch Road.

Q. That outcrop on the Fish Ranch Road is nearer to the Claremont Tunnel than it is to the Broadway Tunnel, is it not?

A. That is my belief.

Q. The map shows, does it not, Defendant's Exhibit B, that the Claremont Tunnel passes very close to the outcrop?

A. I do not question that, I have never checked up on that, but I think that is a reasonable conclusion.

Q. From your general knowledge of that topoggraphy that is true? [758]

A. Yes.

Q. When you prepared the bid for the Claremont Tunnel did you consider that the ground in the tunnel would be self-supporting?

A. I cannot recall at this particular time the thought that I had as to that ground. I do recall that the district, the East Bay Municipal Utility District, prepared plans showing the type of timber that was to be used or the size of the timbers, and the spacing of the timbers, but whether I connected that with the full distance of the tunnel, I have not any clear recollection of at the present time.

Q. What was the spacing shown on the timber plan that you refer to?

A. As I remember it, two feet centers.

(Testimony of Lewis Michael Larson.)

Q. You have looked at that plan since yesterday, haven't you?

A. No, I have not.

Q. I think you stated yesterday that they were 4-foot centers.

A. No, I think that is a mistake, 2-foot centers and 8 by 8 timbers.

Q. And it also showed a plan immediately following the one you have referred to of circular timbers for heavy ground out of 12 by 12 timbers, did it not?

A. That is possible. I have not any clear recollection on it.

Q. And the specifications also required the contractor to place timbers of any size requisite to support the tunnel during construction?

A. That is true.

Q. That was also true of the Broadway Low Level Tunnel?

A. I think the difference in the two tunnels in the specifications lies in this, that there was no intimation in the specifications that the timber should be removed; I think in the geological report that there was no statement that the tunnel ground would be self-supporting, as it was in the Broadway.

Q. In other words, the distinction that you now draw between the [759] specification in the Claremont Tunnel and the Broadway Tunnel is in the case of the Claremont Tunnel the specifications did not call for the removal of the timbers and the plans

(Testimony of Lewis Michael Larson.)

did provide for the timbering of the Claremont Tunnel, is that correct, while in the Broadway Tunnel no plan was provided, and there was also a provision which you say called for the removal of the timbers?

A. That was my understanding of the specifications, yes.

Q. And when you read those Broadway Tunnel specifications you also read the provision that it could be removed or should be removed by the contractor if the District Engineer required it?

A. No, I would not state it that way, that it would be permitted to remain in if the District Engineer permitted it.

Q. If he permitted it?

A. Yes.

Q. You read that provision?

A. I read that provision.

Q. Now, I was going back to the Claremont Tunnel, you testified that there were two comparable formations in the Claremont Tunnel with those that were predicted for the Broadway Tunnel?

A. That is correct.

Q. And as I understand it you meant by that the cherts and the Orindan?

A. Those are the two that I meant.

Q. As a matter of fact, there was considerable volcanic material predicted in the Claremont tunnel, was there not?

A. That was in the lava formation; it is not existant in the Broadway Tunnel.

(Testimony of Lewis Michael Larson.)

Q. I did not hear.

A. That was in the lava formation which does not appear in the Broadway.

Q. It does not appear?

A. It did not appear at all in the Broadway.

Q. I understood you to testify that you had read the Louderback report from pages 13 to 19, Mr. Larson, that is the part dealing with the tunnel.

A. I think you are right. [760]

Q. I will ask you to look at Plaintiff's Exhibit No. 22, at page 14, and will ask you if you read this paragraph—I am reading the first paragraph,—headed "Claremont Cherts."

"After leaving the sandstones the prevailing formation for about 1200-1300 feet, is the Claremont Chert (called Claremont Shales in the San Francisco Folio of the U. S. Geological Survey). This formation consists chiefly of a series of alternations of layers of chert from 2-6 inches or more thick, and somewhat thinner layers of siliceous shale. Occasionally a layer of clay shale, sandstone, siliceous ferruginous limestone, or volcanic ash is encountered."

When you read this report did you observe the reference to volcanic ash?

A. I believe that I observed all that was in the report, and then I took Dr. Louderback's——

Q. Just a minute.

Mr. Smith: Just a minute, let him finish.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: I have a right to have an answer.

The Court: Answer the question and then explain.

Mr. Tinning: Q. Did you read this paragraph?

A. I did read this paragraph.

Q. Now make any explanation you wish.

A. And then I read through all of the details and at the conclusion entitled on page 18, "Tunnels in General," the geological summary or definition of all of the preceding.

Q. You took the definition instead of the detail, that is a summary of your testimony?

A. I surely did, because that was his interpretation of his own remarks.

Q. That was your conclusion?

A. Yes.

Q. But you observed in the Louderback Report when you were preparing your bid the reference to volcanic ash which appears on [761] page 14 of Plaintiff's Exhibit No. 22?

A. I did. I read all of those general remarks.

Q. Now, we will return to the Claremont Tunnel. It is true, then, that in addition to the two formations predicted in the Claremont Tunnel you referred to, the cherts and the Orindan, that there was another formation predicted of lava, in which you found volcanic ash when you drove that tunnel?

A. Yes, I found the volcanic ash as interpreted to me at that time as volcanic ash on the contact between the Orindan—as a matter of fact it was

(Testimony of Lewis Michael Larson.)

after we had passed into the lava formation, within a distance of 60 feet before we encountered that volcanic ash, that was lying in the volcanic formation.

Q. And likewise in the driving of the Broadway Tunnel volcanic ash was encountered, was it not?

A. I could not say to that, I don't know that it was.

Q. You don't know that it was?

A. I don't know that it was.

Q. That might have been encountered after you left. You know what you went through while you were there?

A. I believe I do.

Q. Now, the Hulin report, to refresh your memory with reference to the cherts reads as follows: "Station 108-118, thickness 1,000 feet"——

Mr. Smith: What are you reading from?

Mr. Tinning: The Hulin report.

Mr. Smith: I thought you were reading from something else.

Mr. Tinning: This is the Hulin report.

"Claremont Cherts. Consist of thin layers (1 to 3 inches) of hard but brittle cherts, interbedded with thin (¼ to ½ inches) layers of shale. A few beds of sandstone and extremely hard, tough limestone occur; thickness 1 to 3 feet. The cherts will be hard on drill steel." [762] You knew that from past experience?

A. Yes.

(Testimony of Lewis Michael Larson.)

Q. "But due to their brittleness should break well." I suppose by "breaking well" it means cut off so that you will get a clean line of breakage instead of breaking over a large over-break?

A. It refers particularly to the shattering, that it shatters well.

Q. So that by use of powder you can take it out without having too large pieces to handle?

A. That is correct.

Q. "They should stand well and require little timber. Since the beds stand practically vertical no trouble from slabbing should occur." "Slabbing," I understand, is horizontal or nearly horizontal layers that might fall because those layers were standing more or less vertical?

A. Yes.

Q. You would not have that to contend with?

A. That is generally true.

Q. "The cherts are bounded on the west (Station 108) by a major fault line. The fault is located with a probable accuracy of 50 feet." What I read to you is from page 5 of the Hulin report. Do you remember that?

A. In general, yes.

Mr. Smith: I suggest that the witness be allowed to look at it.

Mr. Tinning: It is a document of the District. I will let him look at it. I have no other copy.

Mr. Smith: You are asking to test his memory on a document he looked at 12 years ago.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: That will not make any difference. He can look at it if he does not think that is right.

A. I think it is [763]

Mr. Tinning: Q. It has been some time since you have seen it, but you don't question that that is a copy of the report?

A. No; I really think it is.

Q. Will you look at the back of it and see the diagram in the back?

A. I think that is a true representation.

Q. You think that is the report?

A. I do

Mr. Smith: I don't question the report. I just imagine the witness has not seen it for many years, and was entitled to see what you were bringing out.

Mr. Tinning: Q. On page 6 of the report, under the heading "Gas Problems," we find the following matter with respect to the Claremont cherts:

> "The Claremont cherts between these stations—" and they are referring to Stations 108 and 118—
>
> "The Claremont cherts between these stations belongs to the formation which is the source of much of the oil in California. The cherts of this belt, even on the surface, have an appreciable bituminous odor. While the structure here is not favorable for the accumulation of great quantities of gas, it is practically certain that some gas will be encountered.

(Testimony of Lewis Michael Larson.)

"It will be recalled that the explosion which occurred in the San Pablo-Wildcat Tunnel of the East Bay Water Company a few years back resulted from gas derived from this same group of rocks, and under very similar structural conditions."

I believe that the Wildcat or San Pablo Tunnel, which is shown on that map as No. 2, Defendant's Exhibit "B," the tunnel you said you had knowledge of when you prepared your bid on the Claremont and also when you prepared it on the Broadway Tunnel—

A. I had some knowledge,—rather indefinite.

[764]

Q. Then, under the heading of "Water Problems" on page 7:

"Water in quantity need not be expected except between Stations 66 and 88."

Those stations are the stations within which the lavas appear on the map?

A. Yes.

Q. "The lavas, the predominant rocks between these stations, are prone to be traversed by numerous fractures, the result of folding and also shrinking on cooling. The rocks therefore tend to contain numerous open waterways. The interbedded fragmental volcanic material, likewise, tends to be porous.

"The structure between Stations 66 and 88, that of a syncline or basin, is decidedly favorable for the accumulation of water, diverting

(Testimony of Lewis Michael Larson.)

all the surface drainage of the area underlain by the lavas towards the trough of the fold.

"It may be pointed out that the wells of the East Bay Water Company in Upper Wildcat Canyon, and also the numerous springs which occur on the east slope of the range (Stations 50 to 60) derive their water from these lavas. The flow of water from the lavas which may be expected in the tunnel may be expected to have some effect on the ultimate producing capacity of these springs and wells.

"Water derived from these lavas in the tunnel may be expected to be quite free from surface pollution, and might well be added to the water supply of the Utility District."

As a matter of fact, you recollect reading this?

A. In detail, it is refreshing my memory.

Q. It is refreshing your memory, as we go further. As a matter of fact, in the lava, you got practically up to the amount of 4,000 gallons per minute of water?

A. Yes; that amount registered on the weir.

Q. In the chert—Mr. Hulin's report then refers to water in the [765] chert, in the portion headed "Water Problems." In the chert, you got up to 600 gallons per minute?

A. According to Dr. Louderback's report, respecting the Broadway Tunnel, he reported 700 gallons per minute.

(Testimony of Lewis Michael Larson.)

Q. I am asking you if you do not recollect, in your own information, the data you gathered as you went further.

A. I think that is approximately correct.

Q. So that you had a great deal of water in the chert, and I think you told us yesterday sometimes you had as much as 10 inches above the top of your rails?

A. At times——

Q. I understand. You are correct. When you went through the chert, you had 600 gallons per minute of water, and it came up about to the top of the rails?

A. Yes, according to my recollection.

Q. And in this Hulin report, you have no recollection anywhere of seeing anything regarding there being heavy, moving or swelling ground?

A. I have not, at this distance, any recollection.

Q. You mean distance in time?

A. Distance in time, yes.

Q. Not distance from me?

A. No.

Q. So far as you know, there is nothing in the report?

A. So far as I know; I don't remember there is anything in it.

Q. Well, I think you are correct.

A. It might be full of it, for all I know. My recollection is not clear on it.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Your Honor, this report—we have no copy of this report; but I have marked up my working copy, and I have marked this up, and I am going to prepare another one, and, with counsel's cooperation, I will ask to offer it at a later date.

The Court: Very well.

Mr. Tinning: Will there be any——

The Court: You can offer it, and withdraw it, if you wish. You may offer it for the record, if you wish. [766]

Mr. Tinning: Well, we will then offer the Carlton D. Hulin report, dated April 27, 1926, entitled "Preliminary Report Upon the Geology of the Claremont Tunnel, East Bay Municipal Utility District."

Mr. Smith: What is the date of that, Mr. Tinning?

Mr. Tinning: April 27, 1926; to which is attached a Claremont Tunnel geological map. May I ask to have this marked Defendant's Exhibit "D"?

(The documents were marked "Defendant's Exhibit "D.")

[Set forth in the Book of Exhibits at page 337.]

Mr. Smith: It will be received preliminarily until we have a chance to examine it, will it, your Honor?

The Court: Yes, subject to any correction.

Mr. Smith: May we take this copy, your Honor, over the noon hour?

The Court: Certainly.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Mr. Smith, I would like to have that back for a moment. I have some other examination that I desire to use it on. This, gentlemen, is a copy of the geology map attached to the Hulin report; and I am going to hand this to Mr. Larson.

Mr. Smith: You state it is a correct copy?

Mr. Tinning: It is a photostat.

Q. Mr. Larson, where, on that map, at what station, is the westerly boundary of the chert formation; on what station does that appear?

A. Approximately at Station 122—no; I am reading the wrong way. Station, approximately, 118.

Q. 118. Where is the easterly boundary of the chert shown?

A. Approximately at Station 106.

Mr. Smith: The stations are from east to west on that?

The Witness: Yes.

Mr. Tinning: Yes. [767]

Q. Mr. Larson, don't you think you had better check that last statement? I think that the station numbering is quite some distance below the tunnel line and the easterly boundary of that chert formation is at about 108, when projecting it out?

A. Yes; you are correct on that.

Q. Yesterday, you stated you felt, and you have again today, that Mr. Hulin's report was remarkably accurate in determining the location of various strata. Isn't it a fact that you first encountered the chert at 121 plus 90 or 92?

(Testimony of Lewis Michael Larson.)

A. I haven't any recollection of that.

Q. Well, if that was the fact, it would be that he missed it by about 400 feet, wouldn't it?

A. Assuming your statement, yes, that would be correct; but let me draw attention, again, to something I noted yesterday: There had been a mistake, somewhere in there, on the stationing. With that correction of the stationing taken into account, my recollection is that his location of the fault lines was reasonably close.

Q. I don't know what mistake there was. This is the document.

A. Yes. I recalled, at the time, that there was a mistake in stationing. I got this information from Dr. Louderback.

Q. Later on——

The Court: Pardon me. So I may follow the testimony: He suggested there might be 400 feet. The way I got it from your testimony on that, yesterday, was——

Mr. Tinning: 50 to 100.

The Court: That is what I thought.

The Witness: Yes, from 50 to 100.

Mr. Tinning: Mr. Larson said he thought there was some mix-up in stationing. He did say that at the time.

The Court: I just wanted to follow the testimony. [768]

Mr. Tinning: Q. On the east end, it was true that the locations, as you drove east through the

(Testimony of Lewis Michael Larson.)

cherts and passed out into the lavas—that the locations which you later encountered—that was about 300 feet west of the location shown on Mr. Hulin's map?

A. I cannot answer that, from memory. I believe that I do have records at Santa Cruz, which are not right now available to me, that will tell me and give a more accurate answer to this.

Q. You said that Dr. Louderback told you there was some mistake in the stationing?

A. I think it was he, yes.

Q. During the time you were constructing the Claremont Tunnel, did you frequently see Dr. Louderback?

A. Quite frequently.

Q. Where? A. In the tunnel.

Q. You called him out there sometimes when you had problems, didn't you?

A. No. His visits were all voluntary.

Q. His visits were all voluntary? A. Yes.

Q. You never called him at night when you had grumblings and rumblings underground in there?

A. I had no recollection of it.

Q. Have you any recollection of times when gas was shaking up the ground and giving you all kinds of trouble in there?

A. I think that was prior to this time when we encountered the cherts. That was in the Chico sandstone.

(Testimony of Lewis Michael Larson.)

Q. I am talking about the whole tunnel. When you were driving through the Chico sandstone, before you got to the chert?

A. When we were driving through the Chico sandstone, we had considerable methane gas; but I don't recall we ever called Dr. Louderback. His visits, I believe, in every case—except he might have been called by the district—were voluntary visits.

Q. In other words, he was out there frequently, and it is your recollection that you never called him, that he came out there to look it over?

A. That is my recollection. [769]

Q. Isn't it true you consulted him as to your problems and what you might require as you drove in?

A. I tried to get him to answer those, but he took a most conservative position, that he could not look into the ground forward; that is my recollection: that the surface or top of it was what he based his information on. I will say this for Dr. Louderback—because it has an important bearing on the confidence I placed in his report: that he was very painstaking in recording what he saw in the Claremont Tunnel.

Q. Were you painstaking in recording what you saw in the Tunnel?

A. Reasonably so, from a construction superintendent's point of view; I should say, unusually so.

Q. You made a report on what you saw in the

(Testimony of Lewis Michael Larson.)

tunnel to Dr. Louderback after you got through, didn't you?

A. I did; at his request, yes.

The Court: We will take a recess for a few minutes.

(Recess)

Mr. Tinning: Q. I will show you a document, which I think is an original document.

A. That is my signature.

Q. That is your signature?

A. Yes.

Q. It is a letter addressed to Professor George T. Louderback, University of California, Berkeley, California, February 26, 1929. Now, on our understanding, gentlemen, I assume it will be satisfactory to use a photostat copy, instead of introducing the original letter?

Mr. Smith: No objection.

Mr. Tinning: If the Court please, we offer as Defendant's Exhibit "E," the letter written by Mr. L. M. Larson, to Professor Louderback, on February 26, 1929,—a report of conditions and methods used by Mr. Larson in driving the Claremont Tunnel.

The Court: It will be admitted and marked. [770]

(The letter was marked "Defendant's Exhibit E.")

[Set forth in the Book of Exhibits at page 349.]

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Q. Mr. Larson, taking this letter up, section by section, I will read as follows:

"My dear Professor: In the following summary of conditions and methods used in meeting them, in the excavation of the Claremont Tunnel, I have endeavored to give station numbers where I had such in my possession; otherwise, set numbers."

I assume by "set numbers," you are referring to the timber sets?

A. Yes. We numbered each individual set, as it was placed.

Q. And, as we have already discovered, from looking at the Hulin map,—the Hulin geology map, which is attached to Exhibit "D,"—the stations started to the east on this tunnel; that is, over at San Pablo Creek, and ran toward Oakland; and you were driving from Oakland towards San Pablo Creek?

A. That is correct.

Q. So, there is usually a subtraction involved in trying to get coordinated with the stations shown on the Hulin map? A. Yes.

Q. Reading further:

"It has appeared to me to be better for me to follow the order of progress rather than that of stationing, although that involves working against the station numbering.

"We encountered a small amount of water

(Testimony of Lewis Michael Larson.)

after penetrating about 20 feet from the west portal, but the ground was firm enough to avoid spile driving or breastboarding."

In other words, you did not have great difficulty getting underground in the initial step; that is what that refers to?

A. Not unusual difficulty.

Q. "At approximately 100 feet in, as I now recall it, we encountered the formation noted in Mr. Hulin's report as silica-carbonate rock. This was blocky, overbreaking in many cases, considerable."

You have a copy of this map in your hand?

A. Yes. [771]

Mr. Tinning: Your Honor, it may be a little helpful, and illustrating matters that we are going to refer to, to have before you the map that is attached to Defendant's Exhibit "D,"—the Hulin geology map.

Q. The formation referred to in this portion of that letter was the Chico sandstone, was it not?

A. My recollection is that was the Chico sandstone which began at 171 plus 50, didn't it?

Q. Well, in other words, it began, as shown on this map, at 171 plus 60?

A. Yes.

Q. You state that, when you were about 100 feet in, you encountered silica-carbonate rock?

(Testimony of Lewis Michael Larson.)

A. I think that was what we termed the Franciscan.

Q. That is what you referred to yesterday as the first formation? A. Yes.

Q. "At a distance in of approximately 700 feet, sand and well-rounded gravel, the latter of a probable maximum dimension of approximately 3 inches, was encountered, carrying some water, probably about 40 gallons per minute."

Is this sand that you refer to there the stream bed you said yesterday you had encountered?

A. Yes.

Q. That was in this area shown as the Chico sandstone? A. Yes.

Q. On this map, that is the second section running from 171 plus 50 to 118?

A. Yes. Let me comment here: that that is in that territory that Professor Hulin says was so covered with improvements that he could not make an accurate survey.

Q. Yes. You made, at that time, no objection or claim that you were misled by the geology report in that he had not predicted this?

A. No; we did not make any such claim.

Q. "No shooting was done in this formation, which extended for approximately 165 feet. There was some clay in the sand, and gravel [772] content; but the standing condition was

(Testimony of Lewis Michael Larson.)

favored by an overlying strata of almost pure clay that almost followed to line of top of cap."

Do I understand that there was a clay bed above the gravel which happened to lie just about on the line of the top of your timbers?

A. Yes; that is the correct interpretation.

Q. So, while the gravels were loose, and you could take them out with tools, without using powder, that is a tight material above that did not cave?

A. Yes; that favored our progress.

Q. "When we passed through this, we encountered about 20 feet of a rather easy-breaking, reddish rock that required light blasting, but offered no unusual difficulties.

"The contact beyond this formation was a sort of 'gumbo' that mined easily and stood well for a short period, when swelling began and it was necessary to relieve pressures wherever possible to prevent breaking of the timber."

That was in this Chico formation, was it not?

A. Yes.

Q. And it was not in any place where Dr. Hulin predicted you were going to find swelling ground?

A. It was in the portion where he said he had not made a study of the conditions because of the improvements.

Q. "In some cases this corrective was not sufficient, and retimbering had to be done intermittently for about 80 or 100 feet."

(Testimony of Lewis Michael Larson.)

In other words, you had timbers that broke, and you had to relieve them, by putting in other timbers between them, did you not?

A. That is the correct interpretation.

Q. "This heavy, constant pressure gradually lessened as we proceeded with our excavation up to Station 164."

Station 164 would take you about one-third of the way through the Chico sandstone,—the second formation shown on the map?

A. No; [773] 164 would be hardly penetrating——

Q. I am using the wrong method, again. It would be about how many feet into the Chico?

A. Well, let me see—from 72 to 60—between 77 and 62—800 feet—wouldn't it be?

Q. About 800 feet in? When you say from 72 to 84, you mean from 172 to 184?

Mr. Smith: To 164.

Mr. Tinning: Q. Well, you had to retimber—and, by the way, do you recollect whether you had to carry the timbers in this portion of the tunnel,—the second design as shown in the District's plan; the circular design?

A. We did not.

Q. You were able to hold it by a U-shaped plan and two vertical posts?

A. Yes; a five-segment arch.

Q. Were those posts vertical or battered?

(Testimony of Lewis Michael Larson.)

A. Vertical, yes. I might mention, there: when I became superintendent, I offered a suggested change to the District, which changed the posts from an inclined post to a vertical post, and allowed the position of the cap to be in a horizontal position at the top, instead of divided; and it was easier to construct it,—that is, the division should not be made at the center; and the District accepted my design.

Q. They permitted you to use that?

A. Yes; and they changed their own design.

Q. "At that point— "You are referring to station 164—

> "we encountered better standing ground, that offered no unusual difficulties. Slight quantities of water were encountered at intervals up to about Station 160, where the shale began to show the presence of gas in small quantities. The gas increased slightly as we proceeded forward, being most noticeable where the shale formation was broken with soft sandstone carrying a small quantity of water.
>
> "The shale worked easily and stood well for a short period, [774] giving us time to erect 6-foot sets after mucking out, the spiling was placed immediately after shooting.
>
> "At Set 636, a run of small particles of comparatively clean sandstone, forced out by a quantity of water sufficient to flood the tunnel to a depth of a foot for a distance of several hundred feet occurred at the end of the spiling

(Testimony of Lewis Michael Larson.)

just as preparations were being made to erect the set. About three hours thereafter there was a gas explosion that injured a number of workmen. It appears that the gas ignited as it was entering the tunnel, because the flames concentrated about the point from which the run came, and appeared to have pressure behind it."

How many men were injured in that accident?

A. Twelve. [775]

Q. There was an accident in the eastern part of the tunnel in the cherts where there were some ten or eleven men killed, was there not?

A. That was a matter of drowning. The people that were driving the Lafayette Tunnel had it bulkheaded effectively against the entry of San Pablo Creek coming into the excavation; an unusual storm came, I think the heavy storm recorded came on Thanksgiving Day and it exceeded any amount that had ever flown before in San Pablo Creek, and it proved that the barricade erected by Smith Bros., who were the contractors on the Lafayette Tunnel, was not sufficient to hold that tremendous amount of water, and it flowed into the screening chamber that separated the two tunnels and then flowed into the Claremont Tunnel; the workmen had just had their Thanksgiving dinner and were just going to work, and when this big flow of water struck them, but that was a condition that was outside of the expected or controllable features of this work.

(Testimony of Lewis Michael Larson.)

Q. As a matter of fact, as long as you have gone into it regarding the state of the flood, it was the contention made and the evidence established the fact that a similar quantity of water had flowed in San Pablo Creek before, and that there was an open adit from the east end of the Claremont Tunnel on the bank of San Pablo Creek above this station, and that the water raised and went into that soft earthy material and went into the tunnel and flooded it. I am not trying to blame anyone.

A. I think that is substantially correct. The tunnel was open at the end at the request of the engineers, so that they could back sight.

Q. Now, coming back to the Chico sandstone:

> "From that point forward gas and water appeared together when the disintegrated sandstone was encountered, though in lesser quantities. A year or [776] so after having passed through this formation weight began to show in the vicinity of sets 330 to 345 and 562 to 586, 619 to 634, 816 to 823, 984 to 1002. Relieving sets were erected to hold the ground."

Now, in the Claremont Tunnel apparently the area that you referred to in this Chico sandstone stood under the original timber about a year before strains and stresses began to be indicated: is that correct?

A. If I recall correctly there were no unusual stresses noted in the Chico sandstone formation. I

(Testimony of Lewis Michael Larson.)

would have to refer to these sets to know just where they are. It may be that some of them were there, but the important fact is to say that it did stand for a year without lining.

Q. Without the permanent concrete lining?

A. Without the permanent concrete lining, yes.

Q. At the end of the year it was beginning near these various points to show strains and stresses?

A. Yes.

Q. As indicated by your report?

A. Yes, where indicated by the report.

Q. This was in the Chico sandstone formation because, if you will note the next paragraph of your letter carries you from the Chico sandstone, as you drive east into the cherts.

A. Yes.

Q. "At station 123 plus 31 to 121 plus 91, from whence we merged from the Chico sandstone section, as noted by Mr. Hulin, to the chert, concrete invert and arch were poured to take care of a ground swell and consequent weight, and to act as a deterrent to a spread of fire if oil were encountered in the cherts."

Do I understand from that, Mr. Larson, that you emerged or passed from the Chico sandstone through the Wildcat Fault and into cherts at station 121 plus 91?

A. That would apparently be the proper interpretation; it was either that or we were right ad-

jacent to [777] it. My memory is not too clear on that.

Q. You would not think if the construction record of the District shows it passed into the cherts at 121 plus 87 that either of you were very far wrong?

A. No, this was approximately where that error in station occurred. I am just assuming that, knowing that there was one.

Q. You are assuming that, but you cannot explain why it was? You have not that knowledge?

A. No, I have not that knowledge.

Q. According to Mr. Hulin's map, the point which in your own letter to Dr. Louderback you give as station 121 plus 91, that was about 400 feet, 391 feet from the point where Mr. Hulin predicted it would occur. Yesterday you testified that before you passed from the Chico sandstone into the cherts you installed about 175 feet of concrete lining as fire break. Your letter, you will note, states, "To take care of a ground swell and consequent weight."

As a matter of fact, you were having considerable difficulty going through that section, weren't you, before you got into the cherts?

A. No, we were not.

Q. You were not?

A. No. That was a secondary consideration. That was one of the reasons, or the first reason, and the real, the only reason for putting that in was in anticipation of encountering possible oil or gas that would light a fire and allow that to come back, be-

(Testimony of Chad F. Calhoun.)

cause we had many places much worse than this where we did not concrete.

Q. You say it was a secondary consideration, but it appears in your letter as a chief consideration, does it not, ground swell and consequent weight?

A. Yes. I am giving you that as a real reason.

Q. "We have made it a plan to stop excavation and pour invert whenever water of sufficient quantity was encountered to make track maintenance and train operation difficult. As a consequence, the [778] invert was concreted to station 121 plus 91, when we attacked the main body of the chert."

Now, in addition to ground swell mentioned in the preceding paragraph and consequent weight, you apparently had experienced a considerable quantity of water at this point?

A. At the time we placed this concrete I believe that the water was less than 10 gallons per minute, practically dry, but we had information from the Hulin report, I believe you will note, that we might expect to find it. I do not know whether it refers to water in the cherts, maybe it does not, but we did expect to find possible gas and oil, and that is the reason for placing this circumferential concrete lining and, of course, at the same time, we would naturally place our inverts; that would give us better operating facilities.

Q. You could not place your concrete lining without placing your inverts, too, could you?

(Testimony of Lewis Michael Larson.)

A. Not a complete one, no.

Q. So that the invert was part of the concrete lining at that point?

A. The procedure we followed was to place the invert first and then pour the lining.

Q. "When excavation was resumed at the last-named Station"—at 121-plus 91, the point where you attacked the main body of the chert—

> "we began to feel pressure on our right. We had proceeded about 24 feet when the pressure became so great that relieving sets were erected to support regular four-foot sets. Suddenly water broke out alongside in a quantity of probably 200 gallons per minute, and the pressure was relieved."

Now, in this area which I think you referred to yesterday as being the section of about 120 feet when you emerged from the Chico sandstone going into the cherts you said you had a difficult time.

A. That is my recollection. [779]

Q. You had broken, loose shale, considerable quantities of water running, requiring breastboarding and spiling. A. Yes.

Q. "At Set 1039 we encountered a large flow in a badly broken chert formation. For a few hours our pumps, having a rated capacity of 800 gallons"—that means 800 gallons per minute, I assume?

A. It does.

(Testimony of Lewis Michael Larson.)

Q. "—could not handle it. The s reduced in quantity to 580 gallons within seven hours, when the reduction apparently ceased. It was necessary to drive spiling and erect breastboards from this set to set 1052."

That would be from set 1039 to 1052, and at 4 feet apart how far would that be?

Mr. Smith: Were they at 4 or 6-foot centers?

A. I am not sure whether they were 4 or 6.

Mr. Tinning: Q. You said in the preceding paragraph you were setting them at 4 feet.

A. I did in that section, but I am not sure it was here, but even assuming it was 4 feet, 39 from 52 would be about 13, would it not?

Q. And four times 13?

A. It would be 52.

Q. 52 feet? A. Yes.

Q. So that if that was 4-foot centers it would be 52 feet.

Mr. Smith: It depends on the centers.

Mr. Tinning: The preceding paragraph, in talking about the same section— I am trying to see what we can get there in definite form in this matter as to this section, because, as you state at the beginning of your letter, it makes it somewhat difficult to tie in with stations.

A. I think possibly to make it clear I should say that most of the spacing of the sets was 6 feet, that was general.

(Testimony of Chad F. Calhoun.)

Q. But your letter says in going through this section you placed them in four-foot centers.

A. Yes.

Q. After you got into the cherts.

A. Yes. I might not have [780] carried it through the faulted section at 4 feet, I am not clear on that.

Q. You also in this faulted zone had to place relieving sets. "At Set 1039 we encountered a large flow in a badly broken chert formation." You remember Mr. Hulin's report where he said you might expect water in the lava. "For a few hours our pumps, having a rated capacity of 800 gallons, could not handle it. This reduced in quantity to 580 gallons within seven hours, when the reduction apparently ceased. It was necessary to drive spiling and erect breastboards from this set to set 1052, when the chert showed a tendency to stiffen.

"Blasting was permissible then to set 1054." Now, when you were coming up to set 1052 wasn't blasting necessary?

A. I would imagine not, from the fact that I do not mention it.

Q. Wouldn't it also be, where you were spiling, you would have such loose material that you had to place relieving sets that you might not require blasting?

A. That would be my conclusion.

Q. In other words, you could pull this stuff out from behind the breastboards and it would run out like loose gravel or loose rock?

(Testimony of Lewis Michael Larson.)

A. With the water contents I think that would be true. I think we drove spiling in that area.

Q. Doesn't the letter say you drove spiling?

A. Yes.

Q. In the preceding paragraph I just read?

A. We drove the spiling and breastboarding.

Q. And you had running material?

A. Which would indicate we did not use powder.

Q. Then we come back to the letter,

"Blasting was permissible then to set 1054, when we again encountered water and badly broken chert, forcing us to again resort to spile driving and breastboarding. At set 1064 we again reached firmer ground, which permitted [781] blasting, until set 1065 was reached,"—that is one set—"when a further addition of water and bad ground forced spile driving again. At set 1069 we appeared to have found better going, though we had later on to erect spiling before blasting the lower part of the face. This condition prevailed until the point of set 1085 was reached. From there on until the chert was passed the ground progressively stiffened, and some heavy blasting was necessary to break the vertical chert. Timbering was spaced up to a distance of 12 feet between sets, where ground was standing well. At sets 1136 to 1139 we later had to erect two relieving sets. Generally speaking, this vertical chert did not take weight after we passed through it."

(Testimony of Lewis Michael Larson.)

Isn't it a fact that through about the first half of the chert area of 1,000 feet that you had variable material, you had about 120 feet when you passed through the fault, where you had to use breast-boarding, spiling, and you had flowing water in that first 120 feet practically throughout all of it?

A. I would have to check up on station numbers to give you a definite reply to that, Mr. Tinning. I think the important point, though, in this is to state that in spite of all these apparent difficulties the cost of the job was below my estimate, and that estimate was based on the geological report and specifications.

Mr. Tinning: We will ask that that go out as not responsive.

The Court: It may go out.

Mr. Tinning: Mr. Larson, I am interested in the condition that you actually found there and I will give you some of the station numbers and ask you if you can remember from these construction records or by notes which you have as to what was actually encountered in that chert? Now, this tunnel that you were making was not very much larger than one of the wall plate drifts of the [782] Broadway Low Level Tunnel, was it?

A. It was about 12 by 12, not much larger than that lower drift.

Q. About that size, and you had timbers in there, 12 by 12 timbers, did you not?

(Testimony of Lewis Michael Larson.)

A. In the Claremont, I did in the Broadway Tunnel.

Q. I did not ask you what you had in the Broadway Tunnel, I asked you, Mr. Larson, what timbers you had in the Claremont Tunnel.

A. 8 by 12.

Q. 8 by 12? A. Yes.

Q. And some 8 by 12 timbers were shattered and crushed at various places in this tunnel and as you passed through the broken portions of the various formations?

A. Yes, in some cases.

Q. In a 12-foot excavation? A. That is true.

Q. Do you remember, Mr. Larson, that at Station 120 plus 63, which was in the Chico sandstone, just before you entered the fault, a cave occurred in a material that was a mixture of sandstone and rotten cherts which required the excavation to be shut down and new pumps installed, and you there had to breastboard the surface of the tunnel as you drove into this rotted and shattered cherts?

A. I believe that is a mistake.

Q. You think that is a mistake?

A. I think that is. I think you will find you are reciting a condition at about station 86.

Q. You think that that is a mistake in the record?

A. I think that is a mistake.

(Testimony of Lewis Michael Larson.)

Q. We won't pursue it further if you think it is a mistake. Now, we are coming eastward from station 120 plus 53 to 119 plus 86. The District record shows that cherts was badly shattered, with occasional layers of sandstone, much water, heavy timbering was required, and that the timbers were set back 12 inches so that you got a much heavier lining, as the specifications permitted the [783] District Engineer to order. Now, this was in the fault area.

A. We are getting mixed. That was still following up on this enlarged section, and in an area that was possibly two or at least 1,000 feet away from there.

Q. You remember that you passed into the cherts, according to your own letter, at 121 plus 92?

A. Yes.

The Court: What is the distance across that cherts formation?

Mr. Tinning: About 1000 feet. Now, 121 plus 92 is out here. A. Out here.

Q. Now, I am talking to you about a station further east than that, 120 plus 63. You said you thought I was mixed up. What did you mean?

A. I am very confident you are. I think you are talking about the thing that occurred about station 86.

Q. I am coming to station 86 later on.

A. I have no recollection of what you are mentioning here.

(Testimony of Lewis Michael Larson.)

Q. Station 86 was in the Orindan?

A. Station 86 would be where we ran from the Orindan into the lava.

Q. Yes. I will come to that later on.

A. But I have no recollection——

Q. You have no recollection of the requirement of widening or thickening the concrete in the very place that you installed this concrete before you passed into the cherts?

A. I can feel perfectly safe in saying it is a mistake.

Q. It is a mistake? A. Yes.

Q. Would you say that from station 120 plus 63 to 119 plus 86 the cherts was not badly shattered?

A. 120 plus 63 to 119 plus 86.

The Court: Keep in mind you are reading from the report there.

Mr. Tinning: No, I am not. I am reading from a document which he said was a report of the East Bay Municipal Utilities. [784]

The Court: I just wanted to have the witness know; I was mistaken; I didn't know whether it was or not. I wanted to clear it up.

Mr. Tinning: I am sorry I did not make it clear. I am referring to some construction records of which I have notes and asking him from his recollection.

A. I think that was in the fault zone; I take it so from the information that has been given by my letter to Dr. Louderback, that the fault zone was

(Testimony of Lewis Michael Larson.)

farther west than indicated in the Hulin report, and now you are speaking of the fault zone, and I think that was pretty well crushed.

Q. I did not make it clear in my question so that you know what area we are in. That is the area of heavy timbering and it was a fact that the timber was set back so that there was a 12-inch extra thickness of lining placed there.

A. That I don't recall.

Q. You don't recall?

A. I don't recall that.

Q. You would not say that that had not been done? You have in mind the place of great difficulty around Station 84 where you did have to put in a 24-inch lining. Is that the only place you thickened the lining?

A. No, there was another place where we ran into 40 feet of heavy swelling ground and it might be that this was the particular distance, but I had in mind a location that was different, we had to set the timbers back in that we had to put in relieving crews—just to illustrate, to make it clear, I had been told that in the San Pablo Tunnel that same material effectually closed and absolutely closed the tunnel three times. In this particular place I put in what we term full circle sets—I think that is what you are referring to—but the timbers there protected, on account of the swelling of the ground, and I put on relieving crews, that is to keep digging the [785] ground back away from the timber to prevent the breakage, and then later on enlarged the

(Testimony of Lewis Michael Larson.)

section, and the swelling was so rapid that I had to pour the concrete in smaller sections there.

Q. 6-foot sections placed by hand?

A. Something like that, yes, and pour the caves, as it would have the effect of shutting off the air and taking up the compression before it raised itself against the pressure placed concrete, and that probably is the section we are talking about now. We did encounter one there now of 40 feet, as I recall it.

Q. Don't you remember that that section that you just referred to so graphically was over 84?

A. I do not recall it.

Q. In the Orindan? A. In the Orindan.

Q. Where you had water in the Orindan?

A. I would be reasonably sure to say no, not in the Orindan.

Q. Not in the Orindan?

A. I am very sure my memory is correct on that. You see, we are now in the Chico sandstone, just leaving the Chico sandstone, and we have not run into the Orindan yet.

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.) [786]

(Testimony of Lewis Michael Larson.)

Afternoon Session,

Wednesday, April 20, 1938;

2 O'Clock P. M.

LEWIS MICHAEL LARSON

Cross Examination (Continued)

Mr. Tinning: Q. Mr. Larson, I understood you to say, just before the noon recess, that the majority of the timbers used in the Claremont Tunnel was 10 by 12 in the cross-section? A. 8 by 12.

Q. 8 by 12? A. Yes.

Q. And, to pursue that further: In some places where you had heavy ground, did you use heavier timbers?

A. I believe, in the two portals of the tunnel—not the two portals; but, on one portal of the tunnel, I started in with 12 by 12, and then I went to 10 by 10 for a distance, and then went to 8 by 12.

Q. Through the Chico and Franciscan, as you went in from the west?

A. I think most of the Chico, I believe was 8 by 12. The Franciscan was 10 by 10,—most of it; and the cherts and the Orindan, 8 by 12.

Q. And the lava? A. 8 by 12.

Q. In these places of heavy pressure that we have been discussing, did you use 12 by 12?

A. Not that I recall.

Q. So far as you know, there were no 12 by 12 timbers in there?

(Testimony of Lewis Michael Larson.)

A. So far as I remember, there was none.

Q. Have you still the copy of your letter to Dr. Louderback? A. Yes, sir.

Q. We have concluded reading to the bottom of page 2 of that letter, and we had diverged to a discussion of some of the stations where there were some pressures and heavy ground, and the difficulties encountered. Coming back to the letter:

> "Very little oil was found in the chert, and such as was observed was more apparent in the slippery sand following the water, [787] which generally showed in the broken formation as we approached nearer the firmer chert."

Now, isn't it a fact, Mr. Larson, that in the first 500 or 550 feet of the chert which you encountered, as you drove from the west toward the east, that, on numerous occasions, you encountered running ground?

A. I have not any direct recollection of that, Mr. Tinning.

The Court: What do you mean by "running ground"?

Mr. Tinning: By that, I mean ground that required breastboarding.

The Court: Very well.

Mr. Tinning: And broken small particles of crushed chert or shale.

A. It is my recollection that those portions, such as there were, were interspersed between firmer chert parts.

(Testimony of Lewis Michael Larson.)

Q. I did not mean to indicate that, throughout the 550 feet, you drove through broken material.

A. No.

Q. As I understand your testimony, approximately 120 feet of the distance after you entered the chert was in broken material; you had considerable difficulty for that 120 feet, and then, I suppose, there may have been some strata that were firmer and not broken?

A. Yes. Those were the things that registered on my memory.

Q. But after you left that 120 feet that you described here yesterday, and came back in the remaining distance of approximately 380 or 400 feet further east from the first 120 feet, you did have interspersed between the firmer layers of chert, the solid, brittle, hard cherts, that area where you had running ground and considerable water?

A. I believe the "considerable water" would be an exaggeration. I don't recall that we struck any considerable amount of water after we left the major formation. Whether there was running [788] material—I would have to refresh my mind entirely, from the letter. It has not been sufficiently registered on my memory that I retained it, because it seems to me that we got through that part and our troubles were fairly easy in the chert section.

Q. The reference that was made, on the preceding page, to sets does not assist you, to refresh your memory?

(Testimony of Lewis Michael Larson.)

A. I would have to check up the spacing of sets, in order for it to be of any value. If you have about 4 feet in the background, it is different than if you had 6 feet, naturally.

Q. Whether it was 4 or 6, it is your recollection, is it not, that, through the first half of that chert, you frequently ran upon lenses or fissures in the solid material in which you found running, broken ground?

A. I would have to reread it more particularly in detail, in order to answer you the question as you have given it to me. I am inclined to think there was probably less; that is the impression that was created: would have probably been less rather than as great——

Q. Well, my question is a general question: That the texture of the material was varying in the first half of that chert? A. It may have been.

Q. Now, we will go over to page 3; and we have read the first paragraph. You state:

> "Leaving the chert, we entered the Orindan, which was very firm and hard to break, as was the cemented gravel that frequently appeared. These materials gradually grew softer as we left the chert behind and approached the lava. Most of the oil and oil-gas we encountered was found on the contact of the Orindan with the cemented gravel. As we approached nearer the lava, the gas decreased and the gravel increased, with water dripping in increasing amount. The

(Testimony of Lewis Michael Larson.)

> Orindan section generally stood well under 6-foot timber spacing, but broke blocky and did not muck well. One muckerman expressed it [789] that 'it was like mucking wool!' "

Q. What did you mean by that?

A. I think it had recementing qualities in it that, when it came in contact with water, the tendency to cement itself into a firmer texture would be present. I think the expression that he used,—the muckerman's expression—the mucker operator expressed it as "mucking wool"—that was his expression.

Q. Do you mean it was resilient?

A. Well, it would tend to fall and break harder in the firmer condition than when it first fell.

> Q. "When it was apparent we were approaching near to the lavas and water began to show evidence of decided increase, we discontinued excavation long enough to bring our concrete invert to the then face."

I suppose that that portion of your letter refers to what you stated earlier: that you put in the invert to carry the water to prevent having wet ground upon which you had to lay your tracks?

A. That was the uniform procedure.

Q. I assume, when you came to the contact between the two formations,—the Orindan and the lava,—that you again encountered considerable quantities of water?

(Testimony of Lewis Michael Larson.)

A. Well, my recollection is: Hulin's report stated we would; and I prepared to meet that condition.

Q. I am referring to the geological map here, in back of the Hulin report: Mr. Larson, the Orindan you described in the paragraph of the letter which has just been read, was the Orindan which is shown on this map,—this geology map attached to Defendant's Exhibit "D",—as the aerial line immediately east of the chert, commencing at Station 108, as shown on this map, and running over to approximately Station 88?

A. That is true. That is the part I had in mind.

Q. What you call "lava"—will you tell me what you call "lava," [790] where you see it on this map?

A. Yes. It is indicated by this line, where the broken—the dotted lines end; and we have a solid line.

Q. There is a distance there of approximately 100 feet? A. Yes.

Q. Shown on this map, longitudinally?

A. Yes.

Q. I was led to believe, from looking at the legend below, that that might be a limestone there.

A. I rather think it was; and I mounted drifters,—they are heavier air drilling machines.

Q. You used those, in passing through this area of limestone which lay immediately to the east of the first strata of Orindan which you encountered?

A. That is true.

(Testimony of Lewis Michael Larson.)

Q. What is the next material that you encountered which seems to be coming off to apex or peak just east of the limestone?

A. The interpretation I received at that time was that that was a volcanic ash. That is where we encountered the major portion of our water in the lava formation. We drove into that in the shot,—the last shot where we used a drifter, which enlarged that hole by about one foot; and the pressure of water and the material broke open the face progressively.

Q. You mean it opened it up?

A. Yes; it broke through the formation,—created hydrostatic pressure and broke through.

Q. Broke through the last part of the limestone that was in the face—— A. Yes.

Q. After you passed through what you call "volcanic ash," what material——

A. Then we ran into the real lava, as indicated by the Hulin report. That continued up to the Pinole Fault.

Q. On this map, doesn't the legend indicate what you call the "volcanic ash" is a conglomerate Moraga formation?

A. That is what is noted on the map. I received the interpretation,—whether it was from Dr. Louderback or other sources,—that it was really a [791] volcanic ash. Whether that interpretation was correct, I never ascertained.

Q. In this tunnel, at some point you had a place where there was 50 or 60 feet of limestone between the volcanic ash?

(Testimony of Lewis Michael Larson.)

A. That is this point we are discussing now.

Q. That is the point where you passed around Station 187? A. No; Station 87.

Q. Station 87?

A. As indicated on this map.

Q. Then you passed through the lava, and you again passed through what is designated here as "conglomerate Moraga formation," and which you say you considered was volcanic ash?

A. I did. Referring to the volcanic ash on that end, I find that to be the result of a pulverizing of this vertical uplift of the east end of the Pinole Fault,—that section that formed the fault. That was my conclusion.

Q. Then you drove beyond the Pinole Fault,—what you call the Pinole Fault; so designated on this map. You were back into the limestone and through that, into the Orindan, again?

A. The limestone, I don't remember. It was probably in the pulverized section. I don't remember driving the same formation on leaving the lava as I did on entering. The line of demarcation between what I believed then to be the lava and the Orindan was very marked.

Q. It came out of it sharply?

A. Very sharply.

Q. Within how many feet, would you say?

A. I think, on a cross-section from the east side to the west side of the tunnel, it would not vary, I

(Testimony of Lewis Michael Larson.)

believe, more than 2 feet. That is my recollection now; but the line was very, very clear.

Q. An abrupt transition from one end to the other? A. Yes. [792]

Q. "On resuming mining, our second shot brought us into the lava. The contact was reasonably soft, but the ground stiffened to such an extent that we found it advisable to discontinue the use of jack hammers and proceed with Leyners. The ground drilled well and broke well, and, though containing some water, gave promise of continuing Leyner ground. At station about 89 plus 00 one of the shots in the right breast penetrated a volcanic ash deposit lying in a sufficiently loose state with a large amount of water, that within three hours the face had broken in against our efforts to hold it and the ash, accompanied with a flow of 1400 gallons of water per minute, partly filled the tunnel for a distance of 60 feet before a sufficient bulkhead to hold it could be erected. The pressure exerted longitudinally forced collar braces from 1½ inches to complete penetration of some of the 8 by 12 timbers. The ash surrounded the sets so that none of them were completely knocked down.

"We dropped back to station 94 plus 08 to 94 plus 40"——

(Testimony of Lewis Michael Larson.)

What do you mean by that, Mr. Larson, do you mean that you receded by reason of the intrusion of the ash in the tunnel?

A. The amount of water was so great that it seemed to be an economical procedure to delay trying to force an entrance in through this volcanic ash area until the water in volume receded, and it was at that period of stopping that I dropped back to put this concrete in that we are now coming to, because it was, in my mind, an economical and proper procedure.

Q. This station at 94 plus 08 was in the Orindan, was it not? A. Apparently it was.

Q. And it was how far east of the point where you had encountered this hard rock—just refer to your letter again, you said at 89 plus 00 one of the shots in the right breast penetrated a vol- [793] canic ash, and water came in with the ash—that would be 500 feet west, would it not, 89 plus 0—that would be 500 feet back into the Orindan?

A. Yes.

Q. "Where we had encountered a very heavy swelling ground and had found full circle sets at two-foot spacing, constantly relieved, not holding the ground, and concreted this section"—you had encountered that same condition driving through the Orindan some hundred feet before you came to this contact between the Orindan and the limestone or lava, whichever you wish to call it? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. And during the time that you were driving forward you had noticed this swelling ground?

A. That is true.

Q. And in that area you had to place full circle timbers? A. I did all that.

Q. To hold the ground?

A. Yes, I thought I would hold the ground that way.

Q. Was that the place where you had to put in straw? A. Yes.

Q. That is where the ground came squeezing out like dough, like putty, into the section from the bottom, and sides, and every direction?

A. That is correct.

Q. That was in the Orindan?

A. That was in the Orindan.

Q. You concreted this section while waiting stability of the volcanic ash—that is the next portion of the paragraph, so that the concrete lining was 24 inches thick instead of 12?

A. I think it was of that thickness.

Q. And that lining was installed because of the heavy pressure found in the ground at that point in the Orindan? A. It was.

Q. And finishing that sentence: "hoping in the meantime that water pressure would reduce." I suppose the quantity refers to the water pressure?

A. Yes.

Q. Or the quantity of water?

A. Yes. [794]

(Testimony of Lewis Michael Larson.)

Q. "The quantity dropped to 900 gallons, and it appeared that it might be cut off from the main tunnel by a short drift to our right, which then appeared the direction of the supply. This drift materially relieved the pressure at the face for a few feet, and allowed us to excavate the ash to our former face without much difficulty."

In other words, the flow of water was so great that you drove off to one side of the tunnel a drift to intercept the flow and divert it from the face?

A. That seemed the economical thing to do first, to drift and take the water through that adit, as you term it.

Q. Both economical, and it also was of assistance in proceeding with the driving through this ash, was it not?

A. That is true.

Q. "However, when we erected our breastboards and began to press forward we found the main water supply was coming from a point forward and apparently in the line of bore. As we drove our spiling, each one a couple of inches, until a penetration of six to eight feet was accomplished, we attempted to open a small hole in the breastboard at the last set and advance a new one four feet ahead."

As I understand you, you had at the base of the tunnel a breastboard or bulkhead the ends of which

(Testimony of Lewis Michael Larson.)

were supported against the last set, timber set that you had in there, either against the last timber set or against the stulls in back of some other set?

A. I do not recall that, but it was a solid breastboard.

Q. And made as near watertight as you could get it? A. Yes.

Q. And when you tried to open a small hole in the breastboard, I suppose you worked through that and removed some of the material behind it and advanced a new breastboard four feet ahead, and you found great difficulty in doing that?

A. That is true.

Q. "This often took hours as the runs of fine ash with an ever-increasing quantity of water made it almost impossibe to make [795] the slightest opening in our former breastboarding. We gradually advanced a small board on the end of a stull to a point four feet distant. This was our most difficult feat and the new breastboard, however small, would aid in stiffening the new face. The next board, also advanced at the end of the stull, was then placed, after many attempts, each stull being nailed to the cap of the last set."

You mean by that that you had a bar or a beam that ran back to the top of the timber ring, pressing against the stull which had been put in and pressing against the breastboard which had been advanced through a hole in the breastboard?

(Testimony of Lewis Michael Larson.)

A. Yes.

Q. It took many attempts to accomplish this?

A. Yes.

Q. "When two feet of new breast was well boarded"—and by two feet I assume you mean up?

A. From the cap downward.

Q. From the cap down? A. Yes.

Q. "The new breastboards were put in at an elevation lower than the old breastboard four feet back so that the fine material could not flow out during the placing of the new board."

A. Let me correct a statement there. I said from the cap downward. We had driven our spiling in advance and there was no cap. It was from the spiling downward.

Q. In the driving of the spiling you said a few lines back, two inches at a time. Does that mean that you were able to advance two inches at a time, or that it was two inches broad?

A. No, as I recall it this spiling, we would drive this one two inches and this one two inches, and so on all around the arch ring.

Q. And it also included the sides of the tunnel?

A. Yes.

Q. So that you had a barrel-like structure of spiling? A. That is correct.

Q. And made it as tight as you were able to get it? A. Yes.

Q. "During all of this time we had run after run of fine material, [796] that it took all

(Testimony of Lewis Michael Larson.)

our efforts to check, though the total losses were never enough to cause much of a void overhead, or permit a sudden drop of material. When the new breastboard was completed two feet down, one or the other of us would creep over the old breastboard and place the next lower new board. This sometimes resulted in hasty retreats and near strangulation as the runs and water attempted to engulf its intended victim; and on at least one occasion emergency pull by the remainder of the men present saved burial."

In other words, you were working in a soft, wet, loose muddy material at that time, were you?

A. That is true.

Q. And a man had to advance through this hole, in what had been the original breastboard at the face and try to work the breastboard in four feet ahead in that material?

A. The reason for that was that you had to carry your forward breastboard at a lower elevation than the one that was behind it; if you did not the material would swell out and run over.

Q. And run over the top? A. Yes.

Q. You had one wall coming down from the top in the advance breast wall, and you had one coming up from the bottom in the old one?

A. That was a wall coming up from the bottom that had already been placed, that was in place, and we were removing it.

(Testimony of Lewis Michael Larson.)

Q. That was the original breastboard?

A. Yes.

Q. You started taking that off from the top and placing the forward breastboard in from the top and came down with the new breastboard at the plank behind on the old breastboard?

A. That is right.

Q. So that was always higher and formed an edge of the trough that held the muck behind that?

A. Yes.

Q. "After getting through this ash deposit holes were made in the overhead spiling sufficiently large to loosen and cause to run such [797] overlying fine material as was necessary to bring large boulders that showed evidence of being there, down on the top of the spiling to forestall a possible future run and drop of material that might cause a collapse of the timbering and resultant trapping and drowning of the crew. These boulders now rest on the timbering and act as a reinforcement against a drop of others.

"We encountered and ever-increasing quantity of water until 3920 gallons per minute were measured on the weir. As we proceeded we encountered new flows and the area left behind gradually and fairly rapidly decreased."

I do not understand what you mean by the last portion of the sentence.

(Testimony of Lewis Michael Larson.)

A. As we picked up new water the water behind us lessened, although it increased in flow, if it had not decreased behind us then that would have been added all the time to the amount flowing out.

Q. In other words, if you went ahead and kept digging out the water decreased as it flowed out of there and drained that area above?

A. Yes, it lessened behind us as we proceeded to pick up new quantities in front.

Q. So that your maximum quantity of water as you estimated yesterday of 4000 gallons a minute was probably never exceeded?

A. No, I think that was the maximum record on the weir.

Q. "Spile driving and breastboarding were again necessary in broken formations carrying large quantities of water at set 1612 to set 1606, stations 82 plus 92 to 82 plus 82, 82 plus 06 to 81 plus 8175, 80 plus 14 to 79 plus 84, 78 plus 06 to 77 plus 79, 76 plus 28 to 76 plus 01, 74 plus 98 to 74 plus 55, 75 plus 52 to 75 plus 27, 73 plus 25 to 72 plus 74, though at no other point than the one in the vicinity of station 89 plus 00 did we have runs that we found it difficult to control." [798]

Where would the last one of those stations, 72 plus 74, bring us on Mr. Hulin's map?

A. That will still leave us in the lava.

Q. So your troubles that are recited in this para-

(Testimony of Lewis Michael Larson.)

graph all have to do with the problems encountered and conditions and materials met in the lava?

A. That is correct.

Q. "In some of the latter breastboard places we could advance our spiling with coal picks and moils." You mean by "coal picks" that you could drive them in with a sledge hammer?

A. No, by a coal pick, that is a pneumatic pick on which you apply air. The moil is a point that you drive in with a pneumatic hammer.

Q. How was the spiling advanced in the Orinda where you had so much trouble with it?

A. In the Orinda?

Q. Yes, you drove it two inches at a time.

A. That was in the lava, that was in this volcanic ash section. There we used a ram.

Q. Such as you show here in the picture?

A. Yes, suspended by a rope.

Q. "In some of the latter breast board places we could advance our spiling with coal picks and moils, and breast board as we pulled the muck away from the face. At other times we could breast board half way down the face and lightly shoot the toe to make mucking easier.

"In cases where we found enough clay present, the star steel was difficult to free, we found augers worked better."

Star steel is drill steel?

A. It is what is termed a star bit.

(Testimony of Lewis Michael Larson.)

Q. "Track laying under twelve to eighteen inches of water, we found difficult, and all timber and lagging and collar braces had to be tied down to prevent them from floating away and derailing trains. Wedges were a constant menace as their size made them hard to hold and easy to float. When we re-entered the Orindan, we found it reasonably soft and blocky. Very little water and no [799] gas penetrated it."

Did you consider the ground through which the Claremont Tunnel was driven self-supporting?

A. Some of it, yes.

Q. Which portion?

A. A good portion of the cherts I would consider self-supporting. However, I wish to qualify that by saying that when we were driving through it and I did not know the nature of the cherts I thought it was necessary to put these sets that I have mentioned with 12-foot centers, but later on I took them out and adopted 24-foot centers as a protection against fragments falling on the workmen.

Q. Did you lag or crown-bar between the sides?

A. No. I lagged over that portion that would come over the track where men would be working.

Q. In other words, you had a roof of crown bars or lagging above the 12-foot sets that you have referred to? A. Yes, I had lagging above that.

Q. The total excavation in the Claremont Tunnel section was about 12 feet high and 12 feet wide?

A. Approximately.

(Testimony of Lewis Michael Larson.)

Q. And in the drift, wall plate drift that you proposed to construct in the Boardway Low Level Tunnel, what was the size?

A. I think at the bottom probably 10 feet. That is something I have not checked up on lately, running to possibly 3 feet at the top. You see, the wall plate drift slopes in with the arch and at the top would be considerably less in extent than it would be at the bottom.

Q. And the timber used in the Claremont Tunnel was 8 by 12? A. Generally.

Q. Generally? A. Yes.

Q. And in the wall plate drift the timber that you used, that you drove the Broadway Tunnel through, was what size?

A. In the drift, [800] itself, it varied, I think from 8 by 8 to 10 by 10, but when I widened out my wall plate and put in the permanent sets, the wall plates were 14 by 14 and the set timbers were 12 by 12.

Q. Mr. Larson, I was directing my question to the timber you used in driving the wall plate drift before you proceeded with any other part of your work.

A. That was mainly 8 by 10, 10 by 10.

Q. When you returned to the Broadway Low Level Tunnel in August, 1935, you inspected the drift that ran from the east portal—there were three drifts, I think, completely driven through at that time? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. What was the size of those wall plate drifts?

A. I think they were about 10 feet high, that is my recollection now, and at the bottom probably 10 feet wide, and at the top at least four, between four and five feet wide. That is as near as I can recall it now.

Q. What size timbers were used, did you say, in these drifts?

A. I used some 8 by 8, some 10 by 10; I do not recall that there were any 12 by 12.

Q. How far apart were the timbers placed in the wall plate drift that you used in driving the Broadway Tunnel?

A. Was that in the first excavation, or after I put my wall plates in?

Q. The first excavation.

A. In the first excavation I aimed where possible and in most cases did succeed in going a distance of six feet.

Q. Where you put your wall plate later, the place that you referred to in your question to me how far apart?

A. My recollection is that in general the station was 3 foot centers, though in some cases where I anticipated a possible weight I put them closer. I did not use any uniform spacing standard. I tried to meet what was necessary and what would become necessary. There were some cases there where I believe I [801] put in two together and then spaced the next one either two or three feet and put two or

(Testimony of Lewis Michael Larson.)

three more; there was no regularity; as I said, it was entirely in my judgment of what pressures we would have to meet.

Q. What was your reason for placing the timbers in the wall plate drift that you have just been referring to on three-foot centers when previously you had been placing them on six-foot centers?

A. In the first place, the drift was temporary and was smaller in opening than the wall plate in its enlarged section; further, it controls only with one operation, that is, it is supposed to hold the ground on the core to the height of the wall plate drift and the material above it to whatever that may be, which is probably somewhere between 3 to 4 feet, and on the permanent timbers you have to meet that with sufficiently strong supports that extend from one wall plate to the wall plate on the other side, that is, you have to cover several drifts.

Q. Wasn't the reason that you brought your timbers closer together the fact that the drift was a bigger drift than the one where you had them 6 feet apart?

A. No, the primary reason was I would have several drifts tied together to form the ring of the arch, and would not have to confine the strength merely to a small drift, but it would have to be able to transmit the weight of the whole thing onto the timbers.

Q. So that the closer spacing of the timbers was to take care of that weight and also to take care of

(Testimony of Lewis Michael Larson.)

the fact that it had a bigger opening than it had where the drift had the timbers 6 feet apart?

A. That is true.

Q. It was not due to the fact that it was in different ground?

A. The spacing of the timbers and the size of the wall plate was conditioned on the ground. [802]

Q. I am not talking about the timbers now. We are talking about what I might call your temporary drift timbers.

A. No, the temporary drift it appeared, and in most cases I believe it proved that on the 6-foot stations with the timbers that I have mentioned they were ample.

Q. When you inspected the old tunnel and you described the result of your inspection to us you told us that you considered the formation of the cherts disclosed there.

Mr. Smith: Does that question refer to the old highway tunnel?

Mr. Tinning: Yes. There is no mistake in your mind about that, is there, Mr. Larson? A. No.

Q. I am referring to the old tunnel which you said you visited and passed through when you inspected the site early in March, and you saw cherts standing in that tunnel. You subsequently formed an opinion because that material was higher in that formation than the Boardway Low Level Tunnel, that it would not be as good material as you had in the tunnel, and that you could anticipate in the tun-

(Testimony of Lewis Michael Larson.)

nel, because the deeper the material the better the formation.

A. That has been my experience. I based it on observations in my past experience.

Q. The old tunnel stands at an elevation of approximately 1030 feet and the Broadway Tunnel at an average elevation of approximately 800 feet?

A. That is the sub-grade of the tunnel, I presume.

Q. Well, the point is I am trying to get a comparison between the two elevations, one tunnel is, the Broadway Tunnel is about 250 feet lower than the old highway tunnel? A. Yes. [803]

Mr. Tinning: Q. The Claremont Tunnel, you will recall, has an elevation in the neighborhood of 300 feet?

A. Yes; 321, I believe, at the top.

Q. So, the Claremont Tunnel is approximately 500 feet lower in elevation than the Broadway Tunnel; and approximately 700 feet lower than the Old Highway Tunnel?

A. I believe that is approximately correct.

Q. From your experience in driving the Claremont Tunnel, would you say that the cherts that you encountered there were better than those that you saw in the Old Tunnel?

A. I think that they were; the laminations were closer, and the material would stand at a greater span; that is, they supported an open structure better in the Claremont Tunnel.

(Testimony of Lewis Michael Larson.)

Q. Then, if I understand your answer, it is your opinion, from driving that tunnel, that the material was better in the Claremont Tunnel,—the cherts better, had more sustaining power,—than in the Old Highway Tunnel?

A. I thought the laminations were closer.

Q. Would you answer my question?

A. I thought they were slightly stronger, yes.

Q. You thought they were stronger?

A. Yes.

Q. How about the Broadway Tunnel?

A. May I ask just what you mean by the question?

Q. Were the cherts in the Broadway Tunnel better than those in the Claremont Tunnel?

A. I know nothing of the cherts in the Broadway Tunnel; I did not see any of them.

Q. Did not see them?

A. No; unless those were chert sections that we ran through. They may have been shale sections; those that I have enumerated on my experience in the tunnel. My reason for saying that is that Dr. Louderback told me they were not cherts but shale. I had previously enumerated, in my notes, that they were [804] cherts.

Q. From your experience in the Claremont Tunnel, would you say that the Orinda formation which you found in the Claremont Tunnel, at an elevation of approximately 500 feet lower than the elevation of the Broadway Tunnel, was better,—

(Testimony of Lewis Michael Larson.)

stronger material,—than the Orindan encountered in the Broadway Tunnel?

A. I hadn't arrived at the conclusion; the reason for that being this was a different type of deposit. It was a deposit either of flood waters, apparently, or a deposit of material in the lake formation. My experience was new on the Orindan, and I could not conceive of what might be the result of the difference in depth of this material.

Q. When you inspected the Boardway Tunnel in August of 1935, and you passed through those drifts that were driven from the east portal through the Orindan formation, did you form any opinion as to the characteristics of that Orindan as compared with the Orindan that you encountered in driving the Claremont Tunnel?

A. I thought that they were less firm; that was my conclusion, looking at it after the drift had been opened for a period of time.

Q. That was the reason you did not form an opinion: you knew the drifts had been opened for some time?

A. I knew they had been, and I was not in a position to know what the weathering effect might have been, and I was not in a position to draw an accurate conclusion.

Q. When you passed through those drifts in August of 1935, did you notice any of the timbers, that were supporting those drifts, showing strain or stresses?

(Testimony of Lewis Michael Larson.)

A. I saw a few where blocks of material had lodged against them, where the timbers had to have reinforcing, by either stulls or sets placed adjacent to the other set.

Q. Did you see any timbers that were broken, forced out of line, [805] except for the blocks of material falling on them?

A. I don't recall, now, that I did.

Q. There was no evidence of heavy pressure in those drifts?

A. There was no evidence of pressure other than that of loosened rocks; that was my conclusion, as I recall it now.

Q. Well, blocks are pieces of material that have dropped out of the roof? A. Yes.

Q. Or the sides? A. Yes.

Q. That is a characteristic of Orindan, is it not? A. It is a characteristic of Orindan, yes.

Q. You saw no evidence of pressure such as you saw at the point we have been discussing in the Orindan where you had swelling ground in the Claremont?

A. No. I believe, Mr. Tinning, that that portion which we have been discussing in the Orindan was not Orindan; that would be my conclusion. I may be wrong about that; I am not a geologist; but it was an intrusion that was found only at that one point in the total of some 7000 feet of Orindan.

(Testimony of Lewis Michael Larson.)

Q. In other words, the material may have been; it was in what is shown on Dr. Hulin's map as Orindan; that is at Station 94,—the one where you had to put in the double barrel?

A. That was in the Orindan section.

Q. Where you required the double blocks, it was in the Orindan section. You found no condition similar to that condition when you inspected the timbers in the drifts in August, 1935, in the Broadway Tunnel? A. I did not.

Q. Mr. Larson, I am going to refer now, for a time, to Dr. L' ıderback's report, Exhibit 22.

Your Honor, it may be of assistance to have this before you; it is a copy of the one that is in evidence, Exhibit No. 22. This is one of my file copies.

[806]

Q. Mr. Larson, if you will look at page 1 of the report,—Plaintiff's Exhibit 22—there is a paragraph I would like to direct your attention to,—"Proposed New Tunnel Road"—because it refers to some general matters.

> "The following is a report on the geological conditions along the line of the proposed new low tunnel highway between Alameda and Contra Costa Counties, based on observations made on the ground surface along and in the vicinity of the proposed highway and tunnel line, with the aid of such clearing, cuts and artificial openings as were made up to June 18, 1932, supplemented by laboratory studies of

(Testimony of Lewis Michael Larson.)

some of the collected material. The proposed line is that indicated on the map entitled: Joint Highway District No. 13, Topography from Broadway to West Portal, Nov. 6, 1930, and corresponding profile dated March, 1931, and on the plan and profile of tunnel dated May, 1932, and in geological cross section dated July 7, 1930."

I call those matters to your attention, because I understood, from your testimony, that you read a copy of a portion of Dr. Louderback's report, pages 13 to 19, dealing with the geology of the tunnel, and that you never saw, as I understand it, the rest of the report?

A. Not at that time that I read the tunnel geology. At the time I read the tunnel geology, I had not seen this; I had not seen this prior to the entering of the bid; that is what your purpose is in the question, I believe.

Q. That is what I have in mind. When you were preparing your bid, and making the assumptions that you have stated you made, you were basing them entirely upon the information which was furnished you by someone in the Six Companies office, —I believe it was Mr. Calhoun who gave you that data?

A. A copy of the geological report.

Q. Yes; a copy of those pages of the geological report? A. That [807] is correct.

(Testimony of Lewis Michael Larson.)

The Court: Q. So I may follow that testimony: Mr. Calhoun, in the Six Companies' office, gave you portions of Dr. Louderback's report?

A. Yes; the portion between pages 13 and 19, that covered the tunnel geology.

Mr. Tinning: Q. And you had, in addition to the pages that you have just stated you got from Mr. Calhoun, a tracing of the map which was made by him, and which is an exhibit here,—Plaintiff's Exhibit 23—might I have it, Mr. Clerk? Exhibit No. 23, Mr. Larson, if you will look at the last map in the geological report, it is the last document—the map attached to the report which was apparently a tracing taken from that?

A. Apparently, yes.

Q. Now, you also had that map on Exhibit No. 23 before you when you were considering Dr. Louderback's report. A. Yes, I had.

Q. Those were the only portions of the report which you had in your possession at the time that you prepared your estimate?

A. They were the only portions that I had at that time.

The Court: Is that true of the other report?

Mr. Tinning: Yes, your Honor.

Q. Mr. Larson, I am just trying to clear this up.

The Court: I just wanted to follow the testimony; that is all.

Mr. Tinning: Q. I understood that all you had, Mr. Larson was the pages dealing with the tunnel

(Testimony of Lewis Michael Larson.)

geology; you did not have the first page that refers to the various things in the paragraph I read to you; you had only pages 13 to 19, and the tracing that Mr. Calhoun had made of the last map which is attached to the report? A. That is true.

Q. You had no other part of the geological report made by Professor Louderback, before you, when you arrived at your conclusion [808] respecting the conditions that would be met in the construction of the Broadway Tunnel?

A. That is true.

Q. Will you please open the geological report to the next to the last map that is attached thereto, Mr. Larson? You will notice that that is a map,—a geological map,—dated May, 1932?

A. Correct.

Q. Plan and profile of the Tunnel. The diagram which you looked at, in the preparation of your work, was prepared in July, 1930, by Dr. Louderback? A. Yes.

Q. It so appeared on the report that you had?

A. Yes.

Q. If you will look at the last map appearing in Plaintiff's Exhibit No. 23, the Louderback Report, you will see the map was dated July 7, 1930?

A. Yes.

Q. And that it shows, in addition to the matters that appear on the diagram, or the tracing that was made by Mr. Calhoun, a so-called final location?

A. Yes.

(Testimony of Lewis Michael Larson.)

The Court: "A final location"?

Mr. Tinning: Yes, final location.

Q. That did not appear on the document that you had?

A. No; I believe it did not. I think he gave only——

Q. Well, Exhibit 23 was the tracing of the——

A. Yes, just this portion.

Q. Yes; and did not show the proposed alignment of the tunnel? A. No.

Q. Now, in the extreme left of Exhibit 23, you will notice Mr. Calhoun sketched in something called "Hill Wash and Creep"? A. Yes.

Q. On the sheet dated May, 1932, you will find, at the extreme left of the sheet, "Overburden of Stream Deposit and Hill Wash and Creep"? You will see that that extends from a point considerably west,— [809] over 100 feet—125 feet west of the portal of the tunnel, to a point five or six or seven hundred feet east on the hill slope?

A. To Station, approximately, 115 plus 50.

Q. Yes, from approximately Station 108. Now, that dotted line signifies unknown location, doesn't it; it is a generalization, and simply indicates an unknown deposit?

A. I think that was the intention of Dr. Louderback.

Q. Well, that is what an engineer ordinarily would conclude from that statement?

A. Yes.

(Testimony of Lewis Michael Larson.)

Q. When you made your estimate, you had never seen this map, on which it is referred to, on the first page of Dr. Louderback's report?

A. I had never seen this map that you are indicating now. I have not been able to tie it in.

Q. Well, so you can understand the thing, you will see, on the first paragraph on the first page of the report, reference to the plan and profile of tunnel dated May, 1932?

A. And the geological cross section dated July 7, 1930. [810]

Q. Now, referring to the diagram which you had not seen, and reading Dr. Louderback's report commencing page 13:

"West Portal

"The material at the portal as indicated in profile is largely stream wash, hill wash, and creep,—soft, weak and pervious to water."

The Court: That has reference to the stream deposit?

Mr. Tinning: Yes. (Continues reading):

"In the actual construction much of this will probably be removed entirely by open cut, any that remains will require positive support as it cannot be expected to maintain itself unsupported for any length of time.

"The hill slope from the indicated portal up to near the crossing of the present 'tunnel road', carries a considerable covering of hill

(Testimony of Lewis Michael Larson.)

wash and creep material, largely consisting of a fairly loose sandy soil. Its depth cannot be accurately estimated. At about 950′ elevation it is about 15 feet thick, and above this towards the present tunnel road it varies from about 10 to 3 feet in thickness. It erodes out very easily under the action of running water and the road culvert has had its outlet position changed at least twice, apparently due to the deep trenches the water has cut.

"Near Station 113, from altitude 860—870 is a bench that appears to be a stream terrace the back part of which carries a thick coating of wash and creep material from the hillside above. It all lies above the level of the tunnel roof but would have a tendency to carry water for awhile after rains and feed it down into the tunnel.

"Monterey (Subrante?) Sandstone.

"The first bedrock formation encountered is of sandstone and [811] sandy shale, probably of the Monterey Group (Sobrante Sandstone?). The sandstones are light gray when fresh, light ochreous colored when weathered. When fresh they are firm, sometimes hard and resistant, but most of the material slacks on exposure to the atmosphere, exfoliates and crumbles down. On weathering it assumes a pale yellowish or ochreous color and mostly disintegrates into

(Testimony of Lewis Michael Larson.)

sand. The sandy shales when fresh are brownish and firm but also slack, exfoliate, and disintegrate on exposure at the surface of the ground. A test tunnel recently run in about 124 feet in the west portal region exposes the fresh sandstones and sandy shales in the face. If this fresh and relatively unbroken condition continues, the formation will prove satisfactory insofar as sufficient height of such material lies above the tunnel roof to give satisfactory support. Where it is but a thin mass between the tunnel roof and the overlying disintegration products it is desirable to plan for its artificial support or removal even if it stands well on first opening.

"Even in the tunnel these rocks will be subject to gradual slackening, although much more slowly than when exposed at the surface of the ground. This should cause but slight difficulty during construction, and when the formation is protected by the finished tunnel lining this action will no longer be effective.

"As at the surface of the ground, only the weathering products are to be observed, before actually driving the tunnel through, the condition of this formation along the tunnel line, and depth to the top of the fresh firm rock, can be determined only by test holes or borings. The condition shown in the face of the tunnel

(Testimony of Lewis Michael Larson.)

are promising of satisfactory conditions beyond.

"On the surface the sandstone ends about at the present 'tunnel road' which probably means that along the proposed tunnel line it [812] would end about Station 118 or 118 + 50, 175 feet—180 feet underground.

"For statement of oil and gas possibilities see under Claremont Cherts.

"Claremont Cherts.

"After leaving the sandstones the prevailing formation for about 1200-1300 feet, is the Claremont Chert (called Claremont Shales in the San Francisco Folio of the U. S. Geological Survey). This formation consists chiefly of a series of alternations of layers of chert from 2-6 inches or more thick, and somewhat thinner layers of siliceous shale. Occasionally a layer of clay shale, sandstone, siliceous ferruginous limestone, or volcanic ash is encountered.

"Water. The strata of this formation intersect the ground surface at steeply inclined angles, and they are cut by many small faults, which in many cases also intersect the surface. The cherts are quite brittle, and any fractures or crush zones produced in them by earth movements tend to remain open and allow free movement of water. The combination of these characters generally results in water flowage through

(Testimony of Lewis Michael Larson.)

many lines in the formation. Previously stored water may be tapped by the tunnel driving. The Claremont tunnel penetrated this formation at a greater depth, and therefore under conditions likely to develop more water than the proposed tunnel. It also encountered it where affected by marked faulting. Nearly 700 gallons a minute were yielded by the cherts when first penetrated, but this yield has since dropped to less than 50 gallons a minute.

"The old inter-county highway tunnel lies entirely in the chert formation, but at a still higher level than the proposed tunnel. I do not know whether it developed much water during construction. It must have yielded some but probably not very much. At present, [813] after rains, there is a certain amount of drip and seepage into the tunnel, and a similar renewal of water flow after rains would undoubtedly take place in the cherts penetrated by the proposed tunnel, even after all storage water had been drained off.

"Fortunately none of the rock types found in the Monterey chert formation as developed in this area suffers from contact with water. They all stand as well wet as dry.

"Oil and gas. The cherts and most of the shales of the Monterey formation are bituminous, and on being heated to a high temperature yield oil and gas. This property, however, is

(Testimony of Lewis Michael Larson.)

not likely to cause any trouble in the course of tunnel driving. But in the course of the geological history of these rocks, some oil and gas has been developed and may be encountered in tunneling, where formation is moderately dry."

(After recess.)

Mr. Tinning (Continues reading):

"In the Claremont tunnel, presumably largely due to the very free flow of water through the cherts, but little oil and gas was encountered, and no trouble was experienced from this source. It may be added that on account of gas troubles in the Chico formation, the tunnel was worked with strict rules about open lights, matches, and smoking, and this may have had something to do with the lack of gas trouble in the cherts. Some of the oil and gas which undoubtedly originated in the Monterey chert formation, was found in the Orinda formation at and not very far from the contact with the cherts. The oil and gas had apparently penetrated the Orinda formation along small faults and fissures. They caused considerable trouble in the eastern part of the Claremont tunnel, where at one time a heavy blast in the face set fire to the oil and gas which in turn ignited the timbers, entailing much delay and expense.

"In the San Pablo tunnel, where the body of cherts is more [814] closed in by overlying

(Testimony of Lewis Michael Larson.)

rocks than in the proposed tunnel, a serious explosion occurred while they were driving through the cherts.

"It is possible that some oil or gas or both developed from the cherts, may have found its way into the Monterey (?) sandstones, and it would therefore be a measure of safety to drive the tunnel with suitable precautions, especially as the cherts are approached within a few hundred feet. If light oil is struck in any part of the tunnel, it should not be allowed to collect in pools or depressions or stand in drainage ditches as it may gradually develop gas and become liable to ignition or even explosion, setting fire to timbers or causing worse damage. It is impossible to predict the exact location or amount of such material that may be encountered. It may be little or none, or it may be in troublesome amounts. It should be watched for and given immediate attention if encountered.

"Structural Characters. In general the chert belt is rather regular in its structure, the strata dipping high (56°-80° at the surface) to the southwest.

"The southwest 100 feet or more of the chert is the most irregular part of the belt intersected by the proposed tunnel line (about 118+50 to 119+50). It is cut through by a fault of considerable magnitude which is probably a continuation of the Wildcat fault of the San Fran-

(Testimony of Lewis Michael Larson.)

cisco folio. This fault has caused more or less shearing, and displacement along subsidiary fractures with rotation of minor blocks and crushing in certain zones. To the northeast of Station 120+00, the structure appears to be remarkably regular to the northeast limit of the chert belt, although there are present some minor faults and crushed zones.

"The fault zone will be occupied by broken and possibly crushed chert. In the Claremont tunnel, the chief yield of water from the cherts came from this fault zone. [815]

"In driving through the cherts, the combination of crushed zones and water often presents difficulties. The crushed rock (with or without water) may flow out into the tunnel almost like quicksand, or, if it holds together better, it may develop considerable pressure, until the water pressure is relieved by free flow into the tunnel. In the Claremont tunnel the careful driving forward of spiling was necessary in the more broken and the crushed portions of the chert. In certain cases where a broken or crushed mass of rock lies within intersecting fault planes, and thereby loses its bond to surrounding rock, it may slump down into the open working, leaving a chamber in the wall or roof. If this is experienced at all in the proposed tunnel it will probably be in the southwestern fault zone mentioned above. If such unsup-

(Testimony of Lewis Michael Larson.)

ported blocks or masses are met, it would probably be best to let them down or remove them, before placing the concrete of the completed structure.

"Based on experience gained from other tunnels in the cherts, and judging from long exposed steep quarry faces in the same formation, it may be expected that after driving, and after the material in the immediate vicinity of the tunnel has come to equilibrium, the rock will stand well and need no support. The main belt of the cherts beyond the fault zone has a particularly favorable structure from this standpoint, and is the strongest and most stable material to be penetrated by the tunnel. Even the part in the fault zone is likely to stand well after the driving through it is completed. This was the experience in the Claremont tunnel.

"The Orinda Formation.

"From about Station 130 (as judged by surface dip, but it may be farther along in the tunnel as the dip may steepen underground), to the east portal of the proposed tunnel, the bore will be entirely in the Orinda formation of Pliocene age. This formation consists of [816] a series of alternations of beds of consolidated gravel, clayey sandstone, and sandy clays, which were laid down as fresh water deposits. The beds dip at high angles (50°-60°) to the south-

(Testimony of Lewis Michael Larson.)

west. Tunnel driving is generally rapid in the sandstones and clays, somewhat slower in the gravels, which are naturally harder on drill steel. The formation usually breaks rather blocky and often develops a certain amount of overbreak.

"Water and Its Effects." "Water is usually in very slight amount in the Orinda formation, coming in along certain gravels and coarse sands, or seeping along minor faults or shear zones. Most of the formation is likely to be dry. In the tunnels already driven through it, the greater part of the clayey sandstones and clays were dry and dusty.

"While these sandstones and clays are naturally mostly dry, they are generally affected by contact with water. In fact they are sensitive to both drying and wetting, and a chunk removed from underground and exposed above ground usually cracks and slacks in the sun, and breaks down into a soft clay or mud in the rain. While the beds are firm, and when dry stand well underground, they carry but little natural cementing material, except in occasional layers. These cemented layers remain firm even on exposure to sun or water.

"Where not badly sheared this formation is likely to stand well provided it is protected from water action and air slacking. In the Lafayette and Claremont Tunnels where water (a com-

(Testimony of Lewis Michael Larson.)

paratively small amount) came down through sheared clays or clayey sands, a locally weak zone was produced that made weight on the timbers, or slowly pushed them in laterally. Such zones required special support. If such zones occur along the proposed tunnel line they are likely to be narrow, and not very serious.

[817]

"In the flood that occurred in the east portal region of the Claremont tunnel (flood water coming in from San Pablo Creek), the water filled the tunnel and stood against walls and roof as well as floor. Portions of the roof slumped down, causing considerable chambers that ran 20 or 30 feet above the tunnel roof line, A number of timbers slipped in laterally, and in places timber sets collapsed before the water was all pumped out. I mention this to illustrate the effect of water lying against an exposed surface of the formation.

"Along the proposed tunnel line conditions are very good from this standpoint, as no important source of underground water exists upgrade from the Orinda beds. It should be easy to prevent the water from the cherts working up into the Orinda region. During construction and later, the tunnel bore through the Orinda beds should be protected from possible influx of water from the surface drainage near the junction of the Tunnel Road and the Fish

(Testimony of Lewis Michael Larson.)

Ranch Road (called on map, Claremont Avenue Extension).

"As naturally exposed at the ground surface, the Orinda formation slacks down into soil and gives very few rock exposures. It is also subject to landsliding. Such a slide has taken place just below the chert contact and about 100 feet north of Station 134. Its movement has been northward away from the tunnel line. Another lies 50-100 feet south of Station 136 and has moved eastward. These are somewhat off the tunnel line, are superficial and have affected the ground for a depth of but 15-30 feet where the tunnel lies 200 or more feet below the surface. Landsliding in this formation does not take place when it is dry and normally occurs following a rainy season, especially one of above the average precipitation. As the slope of the ground is fairly steep near the east portal, and as it may be steepened and otherwise disturbed during tunnel [818] operations, the possibility of the sliding or slumping of this formation in the portal region should be kept in mind and guarded against.

"Support. I believe that in general this formation will stand well if reasonable care is taken in handling it, except near the east portal where the overburden is comparatively slight, and the surface influence may have weakened or may in the future weaken the material suffi-

(Testimony of Lewis Michael Larson.)

ciently to require artificial support.

"Oil and Gas. As noted above, under the Monterey Cherts, it is possible that some showing of oil and gas derived from the cherts may be encountered in driving through the Orinda formation. Their occurrence in this formation is so irregular that their presence cannot be definitely predicted but it would be well in driving the tunnel to watch for them and, in case their presence is noted, and they can be easily recognized in this formation, use care in blasting and have no open lights or flames. See further the statement under Monterey Cherts.

"Tunnel Earthquake Relations.

"As far as we have any definite evidence concerning the faults that cut the proposed tunnel line, their movements were connected with a period of geological activity that is past. There is no field evidence, or evidence from history or from our seismographs that any movements have taken place along these faults in recent times. While the evidence is wholly negative, I believe that it is reasonably safe to assume that no fault will by its movement cut or directly deform any structure that may be placed in the belt under consideration. That future movements will take place farther west near the base of the hills is probable, and it is also likely that the tunnel formations will be shaken by future earthquakes. The rocks should, however, stand

(Testimony of Lewis Michael Larson.)

satisfactorily even in the face of a severe shaking up by [819] an earthquake, any weak near-surface stretches in the region of the portals possibly excepted.

"Tunnel in General.

"In a general way the rocks and rock structures that would be encountered in the proposed tunnel are favorable from the engineering standpoint. The strata mostly dip at high angles and are intersected by the tunnel at a high angle to their trend. Such a condition restricts the width of belts that may show local weakness or much water, and presents the strongest arrangement of the type of strata involved, and the easiest to deal with in tunneling.

"Throughout the main belt of cherts, the rocks may be expected to be entirely self-supporting indefinitely; in the fault belt of cherts and in the Oridan, with proper care in driving and handling, the rocks should stand well and be self-supporting except possibly along certain shear zones which may require local reenforcement to withstand local pressure (not general weight). These statements do not refer to any measures that may appropriately be taken to prevent the detachment or falling of fragments or blocks from the surfaces exposed by the tunnel, but to general support of the mass of rock in the sides and roof of the tunnel.

(Testimony of Lewis Michael Larson.)

"Near the portals the rocks will probably be found weak and will require positive support to prevent movement or caving.

"The question has been raised as to the relative desirability of a single larger tunnel or two smaller ones. The relative advantages in operation of the finished tunnel or tunnels are outside the scope of this report. The geological aspect is related to construction and to the maintenance of the integrity of the finished structure. I do not know of any geological considerations that would indicate that the smaller tunnels are feasible and a larger one not. [820]

"It is certain that in cases where support is necessary or resistance to any possible earth pressure must be provided, the forces or stresses involved will be much greater with a larger tunnel and the problem of handling such conditions to that extent more serious. I have at present no reason to say that the larger tunnel would be impossible or that it would constitute a risk that should not be taken."

The rest of the report, I think, Mr. Larson, deals with outside conditions and was not used in arriving at your conclusions as to what you would have to encounter in driving these tunnels?

A. That is true. [821]

Q. Going back to the west portal, did you consider, Mr. Larson, in preparing your estimate, that

(Testimony of Lewis Michael Larson.)

there was an unknown and indefinite amount of stream wash and hill wash and creep at the west portal of the tunnel?

A. I took into account—

Q. Will you asnwer that question "Yes" or "No" and then explain?

A. Yes. I took into account what is shown on that sectional blueprint made by Dr. Louderback and I might mention that the other one apparently was not made by Dr. Louderback, but the one I referred to made July 7, 1930 indicated a certain amount of wash, and I noticed, too, when I prepared my estimate, that the tunnel portal was at 111 plus 42 on the north side and 111 plus 53—those are approximate stations—and the appearance that I would get from this Dr. Louderback drawing is that at that point there would not be any of the hill wash, and I noticed that in his remarks that most of this material would probably be removed by open cut. I must go into this in considerable length in order to answer your question on that. I noticed that in all of his remarks there were generalizations in his conclusions. He gave an answer or a definition to those generalizations and those are the things that influenced me more than the detail on which he based those conclusions. I took into account the fact that there might be a slight covering over a certain portion of this westerly section, and that is the reason why I first

(Testimony of Lewis Michael Larson.)

used the drift method and then later used the wall plate method, planning to leave the timber in in that portion. But I must say this, that the grouping on the wall plate section indicates that it covered only the Monterey sandstone section.

Q. Mr. Larson, I was directing my question to the hill creep and soft material that is shown on the blueprint which is referred to in Dr. Louderback's report at page 1 as being the map and profile [822] of May, 1932, which you have just said was not prepared by Dr. Louderback, but is referred to in his report, and for your information I will say that it was prepared under his direction and it is the profile of the location at which the center line of the tunnel was located, and the location of the profile shown to you is not the location upon which the tunnel was constructed?

A. Of course, I previously testified to that Mr. Tinning, that I did not have the blueprint, consequently I could not give it consideration from that print.

Q. You did not have that information and on the tracing that you had, Exhibit 23, if you look carefully you will see the words, here, "Depth not known."

A. Yes, I note that.

Q. That was not on what you saw, was it?

A. Well, there was a line indicating it, a faint line.

Q. But there was not the words "Depth not known"?

(Testimony of Lewis Michael Larson.)

A. No.

Q. In other words, the data that was furnished on the blueprint of 1932, which was more complete, shows the stream deposit and hill wash to be considerably deeper and shows it to extend into the tunnel section, into the place required for the construction of the tunnel.

A. The average portal tunnel is at 111 plus 50.

Q. The average portal tunnel is at 111 plus 50?

A. That is the average.

Q. You understand from looking at this blueprint of 1932, the one here, the profile drawn in the actual location, that the profile is the center line of the 200-foot right of way required for the tunnel?

A. I note that.

Q. So that the tunnel south bore was on one side of it and the north bore on the other?

A. I note that.

Q. So that you were simply getting an average condition?

A. Yes. [823]

Q. Because when a tunnel is built on curves the south bore station is not directly opposite the north bore station?

A. It is not.

Q. The tunnel is a little longer, that is correct?

A. Yes.

Q. When you made your estimate you had no knowledge of this map which showed in connection with Dr. Louderback's report that the over-burden

(Testimony of Lewis Michael Larson.)

of stream deposit and hill wash and creep is indicated as being of an indefinite depth and extended into a portion of the section which was required for the construction of the tunnel bore?

A. I did not have this blueprint.

Q. You did not know that, nor when you made that estimate did you have data which showed that the hill terrace above the portals of the tunnel was apparently of considerable depth, unknown, but of considerable depth?

A. No, I had reference only to his information as contained in the written report.

Q. And that information, as we have gone through it, indicated that he did not know how deep that was?

A. No; he referred to a certain elevation of 950 and other things that helped me determine or helped me to arrive at a conclusion.

Q. 950?

A. That is elevation 950, I think.

Q. Would you mind looking at Exhibit No. 23? I will hand you my copy of it. Are the elevations shown in that exhibit?

A. The elevation of 800 is shown and 1,000 and 1,100. Can I mention in this connection that I used a scale to determine the elevation when I have a standard from which to measure? In that way I arrived at this.

Q. In other words, you took a scale of your own, your own engineering device, and scaled this off?

A. Yes.

(Testimony of Lewis Michael Larson.)

Q. And the figures on the right-hand side of the tracing made by Mr. Calhoun are figures to indicate elevation above sea level?

A. That is true. [824]

Q. And they are not in the same position?

A. They are with respect to the location of the tunnel, Mr. Tinning.

Q. What I have in mind is that the diagram attached to the report actually has the elevations on the left-hand side of the sheet indicated and that elevation 950 is practically the top, the highest point of the portion indicating sandy soil or stream terrace.

A. You refer now to station 115 plus 75, I believe, don't you? That is where elevation 950——

Q. Intersects?

A. Intersects, yes.

Q. Now, Dr. Louderback's report with respect to this hill creep states it is indefinite in depth, soft, weak and pervious to the water, and that the hill up to the point where it crosses the tunnel road, above the new tunnel, carries a considerable covering of hill wash and creep material, and that its depth could not be accurately estimated, and that it is 15 feet thick at the, about the 950-foot elevation. Now, Mr. Larson, you stated when you first testified, or earlier in your testimony here, that you had inspected the site and seen a pit near the west portal. Was that pit close to this point discussed here as being the 950-foot elevation?

(Testimony of Lewis Michael Larson.)

A. My recollection is it was about at that point.

Q. And I think you said that when you inspected that it disclosed a broken material and gave you no information as to what may lay underneath?

A. That is true.

Q. You saw that on the ground?

A. I saw that on the ground.

Q. He told you in that first portion of his report that the material at the west portal would erode easily and that it would have a tendency to carry water and that it extended up at least to and across the stream terrace, which apparently is the same place that you afterwards had drag lines and bulldozers shove off the surface material to take the weight off the portal of the tunnel [825] where that crack occurred?

A. That would be true as applies to the south tunnel, but probably not to the north tunnel, for the reason that the north tunnel lies under the slope of the hill coming down this way—

Q. The hill slopes—

Mr. Smith: Just a minute. Let him finish his explanation.

Mr. Tinning: He has.

Mr. Smith: He had not, he was in the middle of a sentence.

A. I want to state my reason for my answer. The hill slopes at this angle over the north tunnel, whereas over the south tunnel it reaches a position of repose, or more of a level nature, which would

(Testimony of Lewis Michael Larson.)

indicate that more of the stream wash might be found over the south tunnel than over the north tunnel, which proved to be true.

Mr. Tinning: Q. In other words, your conclusion from an inspection of the site was borne out by what you found when you excavated?

A. Well, I will have to go back to a statement that I made earlier, we found nothing in my examination of the ground which seemed to conflict with the conclusions that Dr. Louderback drew in his report.

Q. That is not an answer to my question, Mr. Larson. I asked you if you found when you excavated anything different from your conclusions drawn from your observation of the site. I am not asking about the report.

A. Very little difference, only one of degree, probably I should say this, I found a mud that I did not expect to find in the south tunnel.

Q. And that south tunnel was built south of the center line that is shown on the diagram attached to Dr. Louderback's report, the diagram you never saw when you made your estimate?

A. I believe so.

Q. And naturally, where the hill was sloping from the north to [826] the south there would be more material over the north tunnel? There is a right of way 200 feet wide, and there would be more material over the north tunnel portal than

(Testimony of Lewis Michael Larson.)

there would be over the south tunnel portal, which was adjacent to the stream you have described.

A. Yes.

Q. And the mud which you found when you excavated was near that stream bed? A. Yes.

Q. And what you would expect to find on a washed hill side below a stream where the rocks were not carrying a stream? A. Yes.

Q. In hill creeps, alluvium materials such as you observed it?

A. Or even, I think, in the disintegration that would result from water flowing over a formation that would be subject to being influenced by air and water contact.

Q. Now, my question is with respect to when you found the cracking material that you testified that you had gotten in and taken care of when you were getting underground in your excavation, was that on this hill terrace that is shown in Dr. Louderback's map?

A. It was under that hill terrace, but not in the south tunnel. In the south tunnel I don't know whether any of that creep was over the south tunnel or not; that is something I am not competent to answer, but I assume that it was.

Q. That material that you removed when you got these hurry-up operations under way and brought down the bulldozers and caterpillars, and built a special road from the tunnel road to the ex-

(Testimony of Lewis Michael Larson.)

cavation that you were driving, and getting underground, was in this terrace area, was it not?

A. It was in the terrace area, but let me qualify that by a statement that I do not believe it was the hill creep that Dr. Louderback's report referred to. I think it included some hill creep and some material in place.

The Court: We will take an adjournment now until tomorrow morning at ten o'clock. [827]

(An adjournment was here taken until tomorrow, Thursday, April 21, 1938, at ten o'clock a. m.)

[828]

Thursday, April 21, 1938;

10:00 O'Clock A. M.

LEWIS MICHAEL LARSON,

Cross Examination (continued).

Mr. Tinning: I just handed the witness a copy of Exhibit 22 to follow.

Q. From what, Mr. Larson, you were able to find in the portion of the geological report including the diagrams, did you conclude that you would require approximately 40 feet to go underground to reach the sandstone?

A. An average of 40 feet; possibly less in the north tunnel; possibly a little more in the south tunnel.

(Testimony of Lewis Michael Larson.)

Q. What caused you to conclude that you would probably require 40 feet of excavation through soft, unsupported material for 40 feet on the north tunnel?

A. I really formed part of the conclusion from the little drift that was driven into in the vicinity of the north tunnel, coupled with the sketch,—the sectional sketch of the tunnel,—which indicated that there would be some float. I am referring now to the one of 1930, July 7th; I think that was the date.

Q. The only one you had seen?

A. The only one I had seen; and I concluded from that and the geological report that there would be a minimum amount. I assumed 40 feet as a safe amount, because, not only on the geological report but based upon previous experience that the portal sections generally require a little different treatent from the other sections.

Q. Well, isn't it a fact that in the portal section, all materials which you find in this Coast Range always require different treatment than the interior or deeper parts of the tunnel?

A. I think that is a matter for too much information there, Mr. Tinning. I cannot say they always do require it.

Q. Well, isn't it a fact that where you have erosion and weathering, [829] the other conditions of exposure, and moisture and air and sun, that, for rocks and material in this region where you

(Testimony of Lewis Michael Larson.)

have this type of sandstones to reach, the materials erode and soften, and therefore you have to give them positive support?

A. That is a position that I took; and it is customary to give that consideration in approaching a tunnel opening, to give it special support.

Q. Isn't that exactly what my question was: that it was customary and ordinary to do that?

A. Yes, I believe it is.

Q. And in addition to the fact that you have soft material, you have something that you mentioned in connection with the Old Tunnel: your observation of that, that the overburden is low in those places; so, you have an unstable, soft condition immediately above the top crown of your tunnel?

A. It is a safe assumption; being a safe assumption, it is one I customarily follow.

Q. Will you point out any place in Dr. Louderback's report where you found anything that indicates that the soft material at the mouth of the west portal of the Broadway Tunnel, on either the north or south tunnels, would be 40 feet in depth?

A. There is nothing to say the distance.

Q. So, you drew your own assumption from your experience, didn't you?

A. That 40 feet of drift in the west end would be sufficient, and 20 feet of drift in the north end would be sufficient, by the drift system.

Q. Yes, the drift system. Thereafter, you passed through that material at the mouth of the tunnel,

(Testimony of Lewis Michael Larson.)

and came to the Monterey or Sobrante Sandstone; and do you consider that, when you reached the point 110 feet in the tunnel,—in the north tunnel,—that you had reached the standstone?

A. I did not know that I had reached the sandstone. I did know this, however: that it did not have the quality that I had expected it would have, from having read Dr. [830] Louderback's report.

Q. Yes. You have told us that before. I am asking you now whether you had reached the sandstone when driving the north tunnel, when you had driven it 110 feet.

A. I will have to qualify that by saying I am not a geologist and do not definitely know whether it was sandstone or not that I was in.

Q. In other words, you cannot say?

A. I cannot say that I was in sandstone.

Q. With respect to the south tunnel which you drove, I think you said 92 feet? A. Yes.

Q. Had you reached sandstone when you had stopped your drift operations at 92 feet?

A. I thought I had, in the three lower drifts; that is, the lower drift, the second drift and the third drift; and assumed that formation, which was just showing signs of stiffening, would continue to increase in depth and cover the whole of the tunnel.

Q. When you say the first, second and third drifts—

A. Those were the three lower drifts.

(Testimony of Lewis Michael Larson.)

Q. Looking at Plaintiff's Exhibit No. 28—I don't think it will be necessary for you to come down here, Mr. Larson, unless you would like to; I just wanted to be sure I understood.

A. Yes.

Q. The lower drift, second drift and third drift progressively rising? A. Yes.

Q. In that part of the tunnel, you had found, at a distance of 92 feet into the hill, material which appeared to you to be the sandstone?

A. That is true

Q. Now, in reading Dr. Louderback's report, I suppose that you had in mind that he stated that these materials to be encountered might be expected to slack on exposure to the atmosphere, and to exfoliate and crumble down? I am referring to what he says under "Monterey [831] Sobrante Sandstone," on page 13, in the first paragraph.

A. May I have your question, again, please?

(Pending question read by the reporter.)

The Witness: A. I should say yes, so far as you have gone, Mr. Tinning; but, if you will read a little bit further, he qualifies that statement.

Q. Mr. Larson, that is a statement on your part as to what he does; I am asking you if you read that; and, having read it, that you might expect exfoliation of this material where exposed to air—I suppose you mean, by "qualification," that the last sentence in that paragraph, in which he says—

A. The last sentence.

(Testimony of Lewis Michael Larson.)

Q. Yes. "This should cause but slight difficulty during construction, and when the formation is protected by the finished tunnel lining this action will no longer be effected."

Mr. Smith: That is not the last sentence.

Mr. Tinning: I am reading this, Mr. Smith.

Mr. Smith: I know; but you said the last sentence of the paragraph. That is not the last sentence.

Mr. Tinning: The last sentence in the bottom of the page; thank you.

Q. That is the sentence you referred to?

A. No; it is not. It is in the last sentence of the first paragraph, under "Monterey Sandstone."

Q. Then, you are referring to the sentence: "Where it is but a thin mass between the tunnel roof and the overlying disintegration products it is desirable to plan for its artificial support or removal even if it stands well on first opening"?

A. Yes, where it is but a thin mass.

Q. Yes. How is that affected by exfoliation?

A. Where exfoliation occurs, Mr. Tinning, it will occur—the surface exposure; [832] that is the part that is exposed to the atmosphere; if it is only a small layer, it will probably penetrate the whole of the body and cause exfoliation; but, where you have a mass, it only hits the surface, and the loose portion of it does not exfoliate until that mass is removed.

(Testimony of Lewis Michael Larson.)

Q. By "exfoliation," you understood, did you not, the quality of the material when moisture or air reaches it to expand like lime that is slaked,—it gets bigger, thicker, and occupies more space?

A. Well, "exfoliation," is I understood it, Mr. Tinning—it is a tendency, along the line of your explanation, but causing it to flake off.

Q. Well, when it flakes off, it expands, does it not,—thickens?

A. That is a technical question; and one I am not qualified to answer.

Q. "Slacking,"—what do you call that?

A. "Slacking," as I intended it, means that small particles will gradually come off, and expose new surfaces which, in turn, will disintegrate.

Q. The disintegration process; it crumbles down into the sand,—the small particles? A. Yes.

Q. You understood, from the last sentence of the last portion of the last paragraph on page 13, that you might expect slow slacking during construction, and that that would not cause particular difficulty; but, when the formation is protected by the finished tunnel lining, this action will no longer be effective?

A. Yes; that is what the Doctor said; that was my understanding, yes.

Q. When you planned to keep your concrete lining within 300 to 350 feet of the excavation point, you had that in mind, did you?

(Testimony of Lewis Michael Larson.)

A. I had that in mind, yes; and had provided for it, by making that a timbered section.

Q. You mean, by that, providing that you were permitted to leave [833] the timbers here in that section?

A. That was my plan. My estimate shows that.

Q. Was it likewise one of the reasons that you planned the next 720 feet of tunnel in the Sobrante formation to be timbered permanently?

A. That was precautionary, purely.

Q. It had nothing to do with exfoliation or slacking?

Mr. Smith: Just a minute. I submit the witness had not completed his answer.

Mr. Tinning: I have a right to ask him a question.

Mr. Smith: You have no right to cut the answer off.

The Court: We have been getting along so nicely here. The witness, under the rule, will answer the question; and then he may explain it, if he wishes. Proceed. Read the question.

(Pending question read by the reporter.)

Mr. Tinning: See—The witness did not answer my question.

The Court: Q. Answer the question.

Mr. Tinning: Q. The question, Mr. Larson, was: Was one of the reasons that you planned to maintain the timbers permanently in the next 720 feet, under the method you proposed, because of

(Testimony of Lewis Michael Larson.)

the slacking and exfoliation qualities of the materials, through the Monterey Sandstone through which you were driving, were exposed?

A. No; not entirely.

Q. Was it, in any degree?

A. Yes, in part.

Q. Now, explain it.

A. My intention, as I tried to explain, was to be ultraconservative in my estimate. I did not think that it would be necessary to use the timbers throughout that 720 feet; but I introduced it, as a precautionary measure, to make my estimate what I would term "safe." That had more to do with it than any fear of slacking or a tendency of that material to exfoliate, before it would require other support. [834]

Q. I will show you one of our copies of your Exhibit No. 27,—the method that you proposed for excavation; and the exhibit shows a shaded portion on the westerly end of the two tunnels, which you testified was the distance of 720 feet plus 20 feet at— A. Plus 40 feet.

Q. Yes—The legend on that exhibit shows that you expected, within the shaded area, to install permanent timbering? A. That is correct.

Q. And you considered, as I understand it, that permanent timbering was advisable, or necessary, in those portions of the tunnel, when you prepared your estimate, because the ground there, you assumed, was self-supporting?

(Testimony of Lewis Michael Larson.)

A. I cannot say "Yes" to that, Mr. Tinning. I will have to say positively "No." I did expect a good portion of that to be self-supporting, but, as I stated before, it was a precautionary item put in there. I did not think the full amount of 720 feet would really require this; but neither did I feel, Mr. Tinning—Let me enlarge on it—that any of the "B" section would be ordered; I did not think that liner plates would be required; but those things were put in merely to make the estimate safe.

Q. Well, the District Engineer had a right to order "B" section if he wanted?

A. He had a perfect right to order it, yes.

Q. In indefinite amounts?

A. Yes. I cannot say "an indefinite amount."

Q. Well, you considered he could order any "B" section put in, and you figured the price per foot you thought was proper to pay?

A. Yes; but I wish to enlarge on that, and make myself understood, and make my position clear: It is customary, in all estimating, I believe, or, at least, that I have had anything to do with, [835] to have a standard section and then another section, or something whereby, if the Engineer has the right to depart from the standard—I have always thought that to be a legal interpretation, or legal precaution; and it did not mean, because the "B" section was indicated there, that the Engineer had any intention—I am speaking of my mind and my thought—had any intention whatever to order it; but merely

(Testimony of Lewis Michael Larson.)

to give him the right to depart, even to an exaggerrated degree, from the standard section. That is what I had in mind.

Q. In other words, if he met, in the driving of this particular project, conditions of great severity, he had a section to meet those conditions with?

A. He could go anywhere between the standard section and the "B" section.

Q. That is your impression: that he could do anything between "A",—the standard section, which was installed in the tunnel under the plan of timbering which you have here—anywhere between that and the "B" section; that was your interpretation of these plans and specifications?

A. That is my thought, within certain limits. I will say within certain legal limits. I don't know what those legal limits are.

Q. I am not discussing legal limits. We are talking about this direct question. Did that "B" section call for an invert? A. It did.

Q. It called for a thicker wall? A. Yes.

Q. It is your understanding that, instead of putting an invert in, when you were preparing your bid, he could ask you to put in a strut across halfway, say, at the partition line,—something of that kind? Is that what you mean: anywhere in between?

A. I think he provided for certain bars in there, —a heavier—that is, stiffer point where the venti-

(Testimony of Lewis Michael Larson.)

lator platform was, for a distance of about 15 [836] feet above the floor slab—He indicated, there, some rods that had a tensile tendency, from compression members, as I remember it. I am not trying to state what the Engineer had in his mind; but my interpretation of that and he had a right to depart from the specifications where, in his judgment, it was necessary.

Q. And when he departed from the plans, he could go anywhere, between the standard "A" section and the standard "B" section, that he thought was right?

A. That would be my interpretation. [837]

Q. You understood that this sandstone might require permanent support and you provided for it by leaving the timbers in in your proposal, and you hoped that you would not need them all: is that a fair statement?

A. Hardly, Mr. Tinning. I should say rather that I had in mind that a portion of it would require positive support, and, as I explained before, the other was purely precautionary, but I had taken Dr. Louderback's own definition of these general statements which are contained in his conclusion as my guiding star.

Q. You have told us that before, Mr. Larson, a number of times, and I will assume in this examination that the general statements were your guiding star, but we are now coming back to some specific statements. You said the other day, I think

(Testimony of Lewis Michael Larson.)

it was the second occasion when you visited the site of the tunnel, that you visited Dr. Louderback and discussed this with him.

A. It is my recollection it was the second day.

Q. And that would be sometime in March, 1934?

A. It must have been, yes, in the early part of March.

Q. The early part of March, 1934?

A. Yes.

Q. Because you went away March 20 and were gone a month? A. That is about correct.

Q. You went to see Dr. Louderback at what place?

A. At his office in the University grounds.

Q. Is that in Bacon Hall, a round brick building? A. I believe that is the name of the hall.

Q. Who was present when you discussed this matter with Dr. Louderback?

A. Mr. Fontaine, Dr. Louderback, and myself.

Q. Had you telephoned Dr. Louderback for an appointment to see him? A. Not that I recall.

Q. You have no recollection?

A. I have no recollection of it. [838]

Q. But you would not say that you did not?

A. I would not say I did or did not.

Q. At the time that you went to see Dr. Louderback did you tell him that you were preparing an estimate?

(Testimony of Lewis Michael Larson.)

A. I am not sure that I told him I was preparing an estimate, but I did ask him about the geology of this tunnel, and possibly I might have said that I was preparing an estimate. I am not clear on that.

Q. Did you not at that time and place, at his office, ask him or state in substance and effect that you were preparing an estimate for a bid on the Broadway Tunnel and that you had seen his geological report, and that you wanted to talk to him a little more about the Monterey Sobrante sandstone referred to in his report? A. No.

Q. The claimed formation that would be encountered?

A. No, my recollection is that I had not seen the report at that time.

Q. To make your answer definite, it is your recollection that you did not tell him that you wanted to discuss that matter, the first material that would be encountered as you drove the tunnel from the west toward the east, the Monterey Sobrante sandstone?

A. I have no recollection of that particular statement.

Q. And it is your further impression that you went to see Dr. Louderback before you had read his report? A. I believe that is true.

Q. Then is it not a fact that at that time and place you asked him if he could tell you something more about the material than his report stated?

(Testimony of Lewis Michael Larson.)

A. I don't remember that I asked him in that way, Mr. Tinning.

Q. Then your answer would be, so far as you can recollect, no?

A. That would have to be my answer.

Q. Did he tell you, following along in the conversation, that [839] he did not know of any tunnel or other construction work that had been built in the Monterey Sobrante sandstone?

A. He possibly did; I could not say yes positively to that.

Q. Did he tell you that you had experienced a narrow belt of this sandstone in the Claremont tunnel, just a few feet?

A. I have no recollection of that.

Q. You have no recollection of that? A. No.

Q. Did he explain to you that there was no surface exposure of the formation and that only residual soil appeared on the surface? In other words, that there were not any outcrops of these sandstones, did he tell you that?

A. I have no recollection that he told me that.

Q. Didn't he tell you he did not know how deep you would have to go to find cementation in this formation?

A. I have no recollection that he made that remark.

Q. And that the only thing that he knew was that the formation was mainly sandstones which weathering disintegrated?

(Testimony of Lewis Michael Larson.)

A. I do not remember the details to the point that you are stating them, Mr. Tinning.

Q. Did he tell you and Mr. Fontaine that he thought in making up your estimate that you should consider the sandstone as the worst part of the tunnels, and that a large part of it would require positive support?

A. I don't remember it to that effect.

Q. And that by so considering the sandstone and the conditions to be met in going through them, if the actual conditions encountered were better it would be to your advantage, to the contractor's advantage?

A. I have no recollection of that detailed statement.

Q. Now, at that conversation following the discussion respecting the sandstone did Dr. Louderback tell you that you had had experience [840] in the cherts formation in the Claremont Tunnel, which was similar?

A. He may have; I do not recall it; I won't deny it.

Q. And that you undoubtedly would have the same kind of trouble experienced in the Claremont Tunnel in driving the Broadway Tunnel through the cherts?

A. I can't remember the full details.

Q. Was that in substance what he told you?

A. If you will permit me I will tell you what he told me as I remember it.

(Testimony of Lewis Michael Larson.)

Q. I think we had better follow through with specific statements.

A. I don't remember that detail.

Q. So far there is nothing that I have asked you that you remember specifically?

A. No, I don't remember those details.

Q. On the other hand, I understand that you do not deny that they might have occurred, but you have no recollection of them?

A. I have no recollection of them.

Q. In driving through the cherts, did he tell you that you could expect local smashing up of rock, falling out of rock and loose material, both where the rock was wet and dry?

A. I frankly believe he did not.

Q. That he did not?

A. I believe he did not.

Q. So that your statement is your present recollection is it was not made, as far as you know?

A. So far as I know it was not made.

Q. Did he further tell you there was some hope in driving through the Broadway Low Level Tunnel that you would not get as much water as you found in the Claremont Tunnel?

A. It is reasonable to assume that he did say that, but I don't remember that he said it.

Q. Did he tell you in that conversation anything about the Orindan formation? A. He did.

[841]

Q. In what he said to you, did you tell him, when he brought the statement up, that you did not

(Testimony of Lewis Michael Larson.)

need to discuss the Orindan formation with him, because you thought you understood the characteristics of that formation due to your experience in the Claremont Tunnel?

A. I doubt that I made that statement.

Q. Then there is nothing in the various items of conversation that I stated to you that you feel now at this time that you can remember as something that was said to you at the time of that conversation? A. No.

Q. What did Dr. Louderback say to you according to your recollection?

A. According to my recollection he stated that—we will deal with the Orindan first, because that is the subject mentioned—there had been some movement.

Q. Would you mind giving what you remember of the statement that you say he made? Would you mind starting at the first of this and go through with it, if you can? We had trouble, you remember, in going backward yesterday.

A. I will begin at the west end first. My recollection of the conversation was this, that "You will undoubtedly find some float material or hill wash over the west end of the tunnel, and on the Orindan side, there has been a movement of Orindan, but it is off the tunnel line. However I made a report on that." And to the best of my recollection, in fact I know it seems to me he meant why bring up something that you can get from the district? I

(Testimony of Lewis Michael Larson.)

have made a report on it and I considered that as terminating the conversation. That, in substance, is my best recollection, except this one thing he said, "There is an exposure of cherts," and I will try to repeat it as nearly as I can verbatim—"up on the Fish Ranch Road, this side o the divide, I would advise you to go and see that. My recollection is that it was used, at least [842] I have been told that it was used as a quarry or site of a quarry."

Q. When you say "my" that is in quotation?

A. As nearly as I can remember that conversation. "My information is that it has stood practically in the same condition for the last thirty-five years." Now, in substance, not in detail but in substance, I believe that covers the whole of the conversation with Dr. Louderback regarding the Broadway Tunnel, to the best of my recollection.

Q. You only saw him once?

A. I saw him only once that I have any remembrance of prior to the bids.

Q. That is the only thing that affects this?

A. Yes.

Q. It is true after the tunnel was under way and you were working there you saw Dr. Louderback frequently at the tunnel?

A. Yes, frequently.

Q. He was out there to see you?

A. Yes, frequently.

Q. You and he talked together numerous times?

A. We did.

(Testimony of Lewis Michael Larson.)

Q. But all that we are discussing now is the matter that misled you in connection with the specifications and in the preparation of your estimate. Now, this was sometime early in March and Dr. Louderback's report you had not seen at that time?

A. I had not seen it at that time.

Q. How did you come to go to see Dr. Louderback?

A. I had known Dr. Louderback for a number of years and I thought possibly I owed him a friendly visit, if nothing else.

Q. So that you simply called on him and while you were there, and you talked about this tunnel because you were interested in it, while you were there you discovered for the first time that he had made a report?

A. No. I did not discover it for the first time. I read that in the specifications, that there was a geological report, but I had not seen it at the time I saw Dr. Louderback. [843]

Q. A few moments ago you said if the District has it I will go and get it from the District, or something to that effect.

A. I would like to have my testimony read, if you misunderstood it.

Q. I do not think I misunderstood it.

A. I believe you are misquoting it.

The Court: Read the record.

(Record read by the reporter.)

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Q. Did Dr. Louderback say "Why bring it up, I have made a report on it"?

A. He did not use those words, but that is the import that came to me. I could not exactly quote his words after this number of years, I am giving you my recollection of it.

Q. I did misstate you in my question. I understood when you stated "I" that you were referring to yourself. A. No.

Q. Why did you take Mr. Fontaine with you if it was a friendly visit?

A. Mr. Fontaine and I were to collaborate on the tunnel, that is, he was to give me the benefit of his advice, and whenever we made these inspections over the site Mr. Fontaine and I went together, with a view to discussing the different features, and at the end of this second visit I believe that I suggested, "Let us drop around to see Dr. Louderback, we are in the vicinity." And my recollection is we drove back over the same ground to the west portal and then around to see the Doctor.

Q. Then at the time that you saw the Doctor—you started working on this same estimate about February 27, I think you actually arrived in Oakland? A. I believe so.

Q. And this was a week or so along in March, and at that time you had not received from Mr. Orselli the copy of Dr. Louderback's report?

A. I never did.

Mr. Smith: There is no evidence he did. [844]

(Testimony of Lewis Michael Larson.)

A. I never received a report from Mr. Orselli.

Mr. Tinning: Q. From Mr. Calhoun?

A. No, I had not received it at that time, not at the time I visited Dr. Louderback.

Q. You are positive about that?

A. I am pretty positive about it, yes, very positive.

Q. The first time, then, that you were told that you might anticipate float or stream material at the surface of the west portal was when Dr. Louderback told you in his office? A. Yes.

Q. And you had been up to the site and inspected it? A. I had.

Q. You saw a terrace with growth on it, and you saw a stream running down to the south of the tunnel site, in fact I believe over where the south tunnel was later built, you saw all of those things, but you did not know that there would be stream float on that approach until Dr. Louderback told you?

A. I did not state that, that is an exaggeration; I did not expect much of it. My experience has taught me that there is float in every stream where a hill flattens out, that is where valleys are made.

Q. Later on when you read Dr. Louderback's report regarding this entrance under this mountain, driving underground, did you read the paragraph appearing at the top of page 14:

> "As at the surface of the ground only the weathering products are to be observed, before actually driving the tunnel through, the condi-

(Testimony of Lewis Michael Larson.)

tion of this formation along the tunnel line and depth to the top of the fresh, firm rock can be determined only by test holes or borings"?

A. I read the whole of his report for the pages that I mentioned.

Q. Did you make any test holes or borings?

A. I did not.

Q. There was a warning placed in that report before it was done, before the underground work was done it would be wise to do it, was there not?

A. It says, "The depth of the deposit can [845] be determined only by test borings. I do not think it refers there to being a wise thing for the contractor to do.

Q. Anyway, you did not do it?

A. We did not do it, no.

Q. And you had referred to this drift which was mentioned to Dr. Louderback, and which you have already said was entirely removed by the excavation for the portal building, and no portion of which extended into the tunnel proper.

A. That is correct.

Q. Now, in that you saw sandstone, and Dr. Louderback's report, what we have just read before refers to this, which says if they continue that they would be the kind of material you would find in the tunnel?

A. That is a proper interpretation of his report.

Q. And you did not find this continuing; when

(Testimony of Lewis Michael Larson.)

you graded out that tunnel for your portal buildings these sandstones were entirely eradicated?

A. I would not say entirely eradicated, but the firmness they showed in the tunnel was entirely eradicated.

Q. The layer of sandstone at the east end of that drift, which was not in the tunnel, at all, did that layer of sandstone continue on into the hill?

A. Toward the tunnel line, you mean?

Q. Yes.

A. My recollection is that it did for a distance, possibly, of ten or twelve feet, I mean running from the excavation made in the open cut and later.

Q. And did that run continue beyond the 10 feet into the place where the face of your tunnel was?

A. It did not reach the face of the tunnel; how far is only an approximation on my part, but to the best of my memory I know it extended about that distance, but did not reach the face of the tunnel.

Q. Then before you went underground at all you knew that the sandstones exposed in that drift did not extend in to where the tunnel was to be excavated? A. That is true. [846]

Q. You knew also before you went underground that the surface material adjacent to the open cut was slidy?

A. Yes, I knew it was not stable.

Q. You knew they were unstable? A. Yes.

Q. I believe your first tunnel excavation was

(Testimony of Lewis Michael Larson.)

made around the 1st of August, 1934?

A. I think you are correct.

Q. And by that time you knew that the conditions that you were to encounter in going underground were different than you stated you had assumed they would be? A. That is true.

Q. And you went on with the work?

A. I went on with the work.

Q. And you made no protest?

A. It was not my province to make a protest.

Q. You made none?

A. I made no protest, no.

Q. When you were traveling around on these inspection trips and during the observation that you and Mr. Fontaine engaged in in the spring of 1934 did you consult with the Safety Engineer of the Industrial Accident Commission of the State of California, Mr. C. H. Fry, regarding the gas conditions and what would be required?

A. I think it was Mr. Lowell, and Mr. Lowell called Mr. Fry into the conversation.

Q. And at that conversation with Mr. Fry Mr. Lowell was also present? A. Yes.

Q. Were you told that the type of formation through which this tunnel was driven would be particularly bad?

A. I have no recollection of it, and if I had been told that I would have placed Dr. Louderback as an authority ahead of the Industrial Accident Commission.

(Testimony of Lewis Michael Larson.)

Q. Will you state now that in 1934, when you were preparing your estimate, that you were not advised by Mr. C. H. Fry, Mr. Fred Lowell, Safety Engineers of the Industrial Accident Commission [847] of the State of California, and when you called upon them in their office with Mr. Fontaine, that the type of the formation through which this tunnel was to be driven was ground that was particularly bad?

A. I have no recollection of that conversation.

Mr. Tinning: Gentlemen, we have a copy of a letter sent to us by the Industrial Accident Commission under date of April 19, 1935, addressed to Mr. T. M. Price, Six Companies of California. We are perfectly willing to introduce our copy of this letter if you desire rather than ask you to produce the original. It will be stipulated that Mr. Price was the Project Manager at the time stated, will it not?

Mr. Marrin: You offer that. We are going to object to it.

Mr. Tinning: Not as to the form of the offer?

Mr. Marrin: No, we will not object to the form.

Mr. Tinning: Will it be stipulated that T. M. Price was Project Manager of the Six Companies?

Mr. Marrin: Yes.

Mr. Tinning: If your Honor please, we offer in evidence a letter dated April 19, 1935, addressed to T. M. Price, who it has been stipulated was the Project Manager of the Six Companies of Cali-

(Testimony of Lewis Michael Larson.)

fornia, by C. H. Fry , Superintendent of Safety of the Industrial Accident Commission of the State of California, attached to the letter being a copy of a report by F. L. Lowell, who was mentioned by the witness as being present at the conversation, and ask that it be marked "Defendant's Exhibit F."

Mr. Marrin: We object to the introduction of this letter, if your Honor please, upon the ground that it is immaterial, irrelevant, and incompetent, on the further ground that it contains statements or purported statements by the author, which are purely [848] hearsay so far as the plaintiff is concerned, and we suggest that if they desire to prove a conversation they call the author of the letter and not try to prove it by introducing a hearsay statement in the form of a letter to Mr. Price.

Mr. Alexander: We join in the objection.

The Court: State for the record the purpose of your offer.

Mr. Tinning: The purpose of the offer, if your Honor please, is to show that a conversation was had between this witness and Mr. Fontaine with the Industrial Accident Commission's Safety Engineer at a certain time, that it was with respect to the tunnel, and with respect to bad ground conditions at the time when this gentleman was preparing the estimate, and that this statement was sent to the Six Companies of California on April 19, 1935.

Mr. Marrin: If your Honor please, we submit that that is not a proper way to prove a conversa-

(Testimony of Lewis Michael Larson.)

tion. The proper way is to call the persons who were present and have them testify, so that they may be cross-examined. This is a voluntary statement apparently made by Mr. Fry more than a year after the purported conversation took place, the contents of this letter are purely hearsay, and we object to its admissibility for that purpose.

The Court: If the purpose is to bring knowledge home to the man of the making of the statement—I will not admit the conversation—if you eliminate the conversation I think it will be admissible, but not to prove the conversation.

Mr. Tinning: I understand that. The offer is made for the purpose of showing that he had the conversation.

The Court: Is there anything in the letter indicating the conversation had with the witness on the stand in this matter?

Mr. Tinning: Yes. The witness did not deny that he talked to him. [849]

The Court: I am concerned about the admissibility, and I am trying to keep the record straight.

Mr. Wittschen: May I make one further observation, not only that it is a letter directed by the Industrial Accident Commission to Mr. Price, the Project Manager of the Six Companies in 1935, in which he states that away back the year before he had warned this witness as to conditions, and he was continuing that warning during the time that they were driving the tunnel, which certainly is admissible on the main ground as to the knowledge

(Testimony of Lewis Michael Larson.)

of conditions, and the fact that they continued on for a year after they got the warning.

The Court: I will admit it for the knowledge at this time.

Mr. Marrin: Exception.

Mr. Alexander: Exception.

Mr. Tinning: It is on the letterhead of the Industrial Accident Commission, State Building, San Francisco, April 19, 1935.

DEFENDANT'S EXHIBIT F

T. A. REARDON, Chairman,
WILL J. FRENCH,
MEREDITH P. SNYDER,
Members.

State of California
Department of Industrial Relations
Industrial Accident Commission,
State Building,
San Francisco,
April 19, 1935.

Mr. T. M. Price,
Six Companies of California,
P. O. Box 120,
Berkeley, California.

Dear Mr. Price:

On April 15, 1935, F. L. Lowell, our Supervising Mining Engineer, before leaving for a

(Testimony of Lewis Michael Larson.)

trip to Mariposa County, called my attention to the conditions in your two Lower Broadway Tunnels. I am enclosing a copy of his memorandum.

You realize that it is the duty of the employer to take whatever steps are necessary to make his place of employment safe, and it is not the duty of the Industrial Accident Commission to do that.

For some time before the Six Companies bid on this project, we conferred with Mr. Larson and Mr. Fontaine and called to their attention the type of formation through which this tunnel was to be driven, and that the ground would be particularly bad, and that we were quite sure methane gas would be encountered. As we all know, the ground has been particularly bad from the start of the work.

Although I have not visited this project for some time, the information which I have received from various sources, makes me doubt the advisability of the type of excavating which is being done in the down-grade or north tunnel.

This matter should be given your serious consideration and every means known should be taken to prevent this ground from caving or running up in any way, causing conditions which would introduce the possibility of personal injury.

(Testimony of Lewis Michael Larson.)

Sincerely yours,
C. H. FRY,
Superintendent of Safety.

CHF:ES
Enc.
C.C. Wallace B. Boggs, Dist. Mgr., 1448 Webster St., Oakland. [850]

[Endorsed]: Received Apr. 20, 1935 Joint Highway Dist. No. 13, Frank J. Burke, Secretary.

Attached to that is the memorandum of Mr. Lowell.

April 15, 1935.

C. H. Fry,
Lower Broadway Tunnels.

It is my opinion that the Lower Broadway tunnels should be given frequent inspection, at least twice a week. The ground in these tunnels is treacherous and the tunnels are high. At the present time the up-grade or south tunnel has broken into the chert formation which is loose and has a tendency to run. It has to be breast boarded in the two bottom side tunnels and considerable water is flowing from the chert formation.

In the down-grade or north tunnel, the top heading which extends down to the top of the first segment above the posts is timbered and lagged overhead and these timber segments rest on a wall plate that extends in ahead of the main face of the tunnel. When this top head-

(Testimony of Lewis Michael Larson.)

ing cuts the cherts, it will have to be close lagged not only on the top but the sides as well on account of the running condition of the chert formation. The main or bottom heading is about 27 feet high and at present consists of soft sandstone. It is the intention of the Six Companies of California to drill this high heading from a "Jumbo" or portable staging that can be hoisted up and down in front of the face. The face will be practically vertical.

These tunnels should be watched carefully and frequently by our Department in order that the Commission may be informed quickly of impending danger to the men. From our conference today I am informed that it will not be possible to devote the time necessary for as frequent inspection of these tunnels as I would like to make and at the same time carry on the routine inspection in the field. I am, therefore, leaving tomorrow for Mariposa County on my regular County inspections.

F. L. LOWELL.

[Endorsed]: Received April 20, 1935. Joint Highway Dist. No. 13. Frank J. Burke, Secretary.

[Endorsed]: N. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. F. Filed April 21, 1938. Walter B. Maling, Clerk.

(The letter was marked "Defendant's Exhibit F.") [851]

(Testimony of Lewis Michael Larson.)

(After Recess.)

Mr. Tinning: Q. Dr. Louderback's report,—going into the Claremont cherts formation,—called attention to the fact that you would go through layers of cherts, which are the brittle, hard rocks, and thinner layers of shale, including a layer of clay, shale, sandstone, volcanic ash, some of this limestone, which, I understand, you also encountered in the Claremont Tunnel—Is my understanding correct on that?

A. I think I encountered some of the limestone in the Claremont Tunnel. I am not a geologist. and—

Q. Well, Mr. Larson, you stated, yesterday, in looking at that document, when you passed out of the Orindan the first time into the lava, that you saw there a hard rock which was designated as a limestone? A. Yes.

Q. That is what you understood by Dr. Louderback's report: he states a layer of limestone—was it not—the type of material?

A. Today, I would put that interpretation on it, because I have not remembered the limestone referred to in Hulin's report. My memory brings it back to me that it was that. I had forgotten his remark about limestone. Consequently, I could not apply to any memory that I retained, at the time I read this, as being the same material.

Q. That was something in your own memory, then; you simply overlooked one of the characteris-

(Testimony of Lewis Michael Larson.)

tics that you had found as you drove through the Claremont Tunnel,—a small area there?

A. I had forgotten its presence in the Claremont Tunnel.

Q. You had not forgotten that volcanic ash that you encountered in the Claremont Tunnel, had you?

A. I had not forgotten that, Mr. Tinning; but I must say: volcanic ash, with water, is a different thing than volcanic ash, without water; entirely different; one will stand, and the other won't.

Q. When Dr. Louderback mentioned "volcanic ash," in his discussion [852] of the Claremont cherts, there was no qualification of the point we are discussing now, with respect to water—

A. Not at all; but I have always had to couple this with my own definition of what he termed these generalizations.

Q. You have told us that before.

A. Yes. I don't want you to forget it.

Q. When you were reading this report, and preparing this estimate, for the tunnel, of some two and a half million dollars, your memory did not refer back to your experiences in the Claremont Tunnel where you had gotten into volcanic ash?

A. I won't say I did not think of it; but I did not pay much attention to it, in view of what this geological report states this particular tunnel would be. That is the one I was dealing with.

Q. Although you had advice that volcanic ash

(Testimony of Lewis Michael Larson.)

might be expected in the Broadway Tunnel, you paid no attention to it?

A. No; because it would be self-supporting ground.

Q. Your generalities overcame the particular matters that were called to your attention?

A. Yes; because the Doctor had drawn the conclusion.

Q. You were relying wholly on him?

A. I have a great respect for Dr. Louderback's conclusions.

Q. Apparently. The strata of this formation intersects the surface at inclined angles; that is, they were steep? A. Yes.

Q. And it was called to your attention you could expect the same conditions that you had in the Claremont Tunnel, where you had considerable trouble in the cherts?

A. The trouble—I will say this—

Q. Will you answer "Yes" or "No"?

A. It is very—

Q. Will you answer "Yes" or "No"?

A. May I ask that the question be read? [853]

(Pending question read by the reporter.)

The Witness: A. No. I should say "similar conditions" rather than "the same conditions"—But may I go ahead with my qualifying statement?

Mr. Tinning: Q. Yes.

A. Since bringing that matter up, I have had occasion to delimit the amount of bad ground in the

(Testimony of Lewis Michael Larson.)

cherts, on my own report to Dr. Louderback; and I find that the extreme distance could not be more than 196 feet out of it, taking my own report.

Q. For the purpose of clearing up the record—You are going back to something we went into yesterday? Will you give us the data that you have referred to? Is it between stations? How do you arrive at your conclusion?

A. I arrived at the conclusion by taking my letter and referring to the number of sets, where sets are indicated; and, where sets are indicated, multiplying that distance. Now, if it happened to be 13 sets, by 4—which my letter indicated was the spacing of those sets—and 13 sets times 4 is 52 feet. I analyzed my letter.

Q. In other words, you took the data in your letter, and worked it out; and your testimony, today, at the present time, is that you have given consideration to the computation, based on the data from your letter, that there was 196 feet of what I think you call "bad ground in the cherts formation" in the Claremont Tunnel?

A. That would be the extreme limit; about 108 feet of that being breastboard ground.

Q. Dr. Louderback's report stated that these cherts are quite brittle and, when fractures did occur, produced in them by earth movement, it tended to remain open to allow the free movement of water. That was true in the Claremont Tunnel, wasn't it, where you found fractures?

(Testimony of Lewis Michael Larson.)

A. Not that I recall. My records on the [854] details of the tunnel are not too clear; that is, if I would run into a fracture, whether it contained a great amount of water or not, I am not in a position now to remember.

Q. But it is true you had places in the Claremont Tunnel, when you were driving through there, where you had fissures that would fall off as you went through the cherts,—one case, at least 30 feet above the tunnel, and filled the tunnel with broken cherts that ran out of it?

A. I have no recollection of that.

Q. You have no recollection of that?

A. No.

Q. How much water did you encounter, in gallons per minute, as you drove into the Broadway Tunnel, in the portion where you were in charge up to April 30, 1935?

A. I believe there was very little record kept. The amount was relatively small. I have, since joining the Six Companies in the preparation of this case, gone into the records and I have some; but I do not happen to have them available right here.

Q. While you were working in the driving here, up to the time you left on April 30, 1935, was there ever a flow of water, in the north tunnel, of, say, 200 gallons per minute? A. I believe not.

Q. It was a comparatively dry tunnel, was it not?

(Testimony of Lewis Michael Larson.)

A. It was comparatively; I will say "Yes," because I wish to qualify it: that very little water in a tunnel, under certain conditions, where the ground is fractured, might cause a great deal of trouble; whereby, a big volume of water, in other ground, might cause little trouble.

Q. You had five to six hundred gallons per minute of water in the cherts in the Claremont Tunnel, and you never had anything approaching that in the portion of this Broadway Tunnel that you drove? A. I did not, while I was there; no.

Q. Now, you stated that you expected to find cherts formations in [855] the Broadway Tunnel comparable, to some degree, at least,—and perhaps better than you found in the Old Low Level Tunnel? I am showing you Defendant's Exhibit "C," —photograph No. 10; which you remember you saw the other day, and which shows the cherts formation exposed on the south side of the Old Tunnel 430 feet in from the west portal?

A. I expected to find cherts as indicated in the position indicated there, where the laminations are close, where there are no cross sectional cracks that would cause a collapse, of any major amount, or even a small amount, of the cherts, because it was said to be self-sustaining; and, consequently, it could not, under any circumstance, slough.

Q. And that portion that is shown in that photograph was cherts of the character that you expected to find in the tunnel?

(Testimony of Lewis Michael Larson.)

A. There is a similarity.

Q. Yes. I will show you a photograph,—a view of the right-hand side of the down-grade tunnel—that is, the north tunnel, taken on February 15, 1936, at Station 124 plus 85, showing the area between 124 plus 85 and 124 plus 94; and ask you if that photograph is a fair representation of the type of cherts that you expected, when you looked at the Old Tunnel, to find when you drove through the Broadway Tunnel. A. No; it is not.

Q. What is the difference?

A. This shows that it lacks self-sustaining, self-supporting qualities, in some parts; it might be in the lower part of this photograph, where the laminations are unbroken; it is difficult to say. Now, just drawing a conclusion, from a photograph, that that portion might be sound—

Q. That portion shown at the lower part of the tunnel up to the wall plate, or up to the ventilator pipe, is about the same height as you found in the Old Tunnel, isn't it,—16 or 17 feet?

A. I believe that estimate is approximately correct. [856]

Mr. Tinning: We will offer the photograph in evidence, your Honor, please, as a defendant's exhibit.

(The photograph was marked "Defendant's Exhibit G.")

[Set forth in the Book of Exhibits at page 358.]

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Q. I show you a photograph taken in the north tunnel—

Mr. Smith: Which is the top of the photograph?

Mr. Tinning: This is taken of the roof of the tunnel, your Honor; and, by holding the bottom of the picture away from you, you will see it.

Q. I will ask you to observe that photograph, Mr. Larson; and ask you if the chert disclosed, on the north side of the roof of the tunnel, which is standing unsupported after several sets were shot out of the roof of the tunnel— if that is the kind of cherts you expected to find in the tunnel, after your observation of the Old Tunnel.

A. I believe not, Mr. Tinning. I think I see there,—not too surely, though—I think I see a fractured zone, whereby the formation of the laminations have been broken. It is difficult to say—to take this picture, and make any definite conclusion—draw any definite conclusion, excepting the one that apparently is evident; that it needed support, because the support is there; and I notice the lagging is relatively close. Apparently it is a broken formation, rather than a self-supporting one.

Q. I will ask you to look at the spacing. How long are the segments that form the boundary of this rock that is hanging down from overhead?

A. I would have to ask others about that. I would assume somewhere between 6 and 7 feet.

Q. So, you have a piece of rock hanging, or un-

(Testimony of Lewis Michael Larson.)

supported, in the roof of the tunnel, at least 6 by 6 feet?

A. It looks to me like part of it has fallen out.

Q. You think some of it has fallen out?

A. It looks that way, from [857] the photograph.

Q. And you, not being there, never saw this particular condition?

A. No; I had not seen it. I have not seen any of the cherts in the Broadway Tunnel.

Q. Would you say the section between those two rocks,—the double timbered segment which appears near the top of the picture and the first single rock, as you go further into the tunnel,—some 9 feet space in there—that there is anything supporting that roof at that point?

A. Yes, Mr. Tinning, there is.

Q. Is it the lagging?

A. The lagging or spiling,—whichever it is that they use there,—gives artificial support.

Mr. Tinning: We will offer this photograph in evidence as a defendant's exhibit.

(The photograph was marked "Defendant's Exhibit H.")

[Set forth in the Book of Exhibits at page 359.]

Mr. Tinning: Q. I show you a photograph taken February 15, 1936, showing the timbering on the south side of the down-grade tunnel, taken showing the section at Station 125 plus 53, and I will ask you to look at the cherts appearing below the wall plate in that portion of the tunnel; and ask you if it is

(Testimony of Lewis Michael Larson.)

similar to the material that you saw in the Old Tunnel.

A. Some portion of it is, Mr. Tinning.

Q. And the strata lie at about the same angle?

A. I believe so.

Q. So, it apparently is part of the same general formation?

A. Same general belt.

The Court: What would the distance be?

Mr. Tinning: Oh, I should say, five to eight hundred feet. That is a pretty wild guess, I am afraid.

The Court: Well, I just want to follow it; that is all. I understand.

Mr. Smith: You mean between the two tunnel-

[858]

Mr. Tinning: Between the two locations. This was pretty well toward the east, in this——

Mr. Wittschen: You mean toward the north?

Mr. Tinning: To the north, yes. We offer this picture in evidence, your Honor.

(The photograph was marked "Defendant's Exhibit I.")

[Set forth in the Book of Exhibits at page 360.]

[859]

Q. Now, it is true, is it not, at least in the portions of the tunnel that you had to do with, that there was no gas or any serious amount of oil encountered?

A. I don't remember any at all, Mr. Tinning, either gas, or any great amount of oil.

(Testimony of Lewis Michael Larson.)

Q. So that was one problem you did not have in the tunnel which Dr. Louderback stated you might have, and you did not have? A. That is true.

Q. In preparing your estimate I assume that you had that in mind, that you might have to meet that condition? A. I made provision for it.

Q. You were not in the tunnel when the cherts was intercepted or when you drove into the cherts?

A. Not the cherts belt that Dr. Louderback says in his report; this cherts that I have been taking as cherts was merely my own idea of what might have been cherts, the laminations that I discussed in the early part of my testimony.

Q. Dr. Louderback made some predictions as to where various formations would be met as to distance in the stations. Have you gone over those in his report?

A. I went over them in the sectional drawing, I think it refers to it here in the report; in fact, my recollection is that he mentioned between stations 118 plus 50 and 119 plus 50, or thereabouts.

Q. That is just about——

A. That would be the fault line, that is probably where we would enter it.

Q. That is where it was struck, is it not?

A. Very close.

Q. Likewise when you had passed out of Claremont cherts into Orindan formation at Station 131 or 132, also that formation was struck at the position that he indicated within a few feet?

(Testimony of Lewis Michael Larson.)

A. From the company's records I draw that conclusion, yes.

Q. You have been working on this whole matter so that is something [860] we can at least be definite upon, his predictions as to the points were very accurate? A. Were very close.

Q. You understood that when you went through the fault zone, the Wildcat fault, that you would expect to have considerable difficulty in driving this tunnel, didn't you?

A. Some difficulty, yes, Mr. Tinning, but I would like to say this, it was expected much less water would be encountered, consequently much less trouble.

Q. Dr. Louderback, in his report, did not attempt to predict the quantity of water with definiteness, he said that it could be hoped there would be less water? A. Yes.

Q. And except for water which would drain quickly, apparently the ground water that was stored when you went through that fault, your water conditions were a temporary matter and that turned out to be a fact, that the quantity of water rapidly dropped just as it did in the Claremont Tunnel?

A. Yes, together with the fact that he thought that there was probably a continuation of the Wildcat fault, which led me to believe, and possibly I am right in believing that, in having passed through the fault—I cannot say—but much of that water that was in the fault of the Broadway Tunnel would find

(Testimony of Lewis Michael Larson.)

its way into the Claremont Tunnel, which was nearby, and at a much lower level. That was my thought in the matter in reading his report.

Q. In other words, you connected the two tunnels together as to underground strata and you thought perhaps the Wildcat fault had drained off some of the water that you would have found in driving the Broadway Tunnel if the Claremont Tunnel had not been built several years before; is that what you mean?

A. I mean this, we left pipe in the lining of the Claremont Tunnel whereby the water from a higher elevation could enter the tunnel; [861] it was found to be practically chemically pure and the utility district wished to take that water, and it seemed reasonable for me to assume that much of the water from the Broadway Tunnel might find its way down there and leave the Broadway Tunnel as the Doctor predicted, with the hope that there would be less, and that hope was probably influenced by his belief.

Q. It is about a mile from the Broadway Tunnel No. 1 on Defendant's Exhibit B to the Claremont Tunnel, and you thought that the water in the ground rock below the Broadway Tunnel might be drained out by the opening in the Claremont Tunnel, so that you would not have so much water to contend with?

A. I thought that was entirely possible.

Q. Doctor Louderback did not say that?

A. No, he did not.

(Testimony of Lewis Michael Larson.)

Q. That was your conclusion?

A. That was my thought in trying to interpret his remarks that probably less water would be found.

Q. You do not claim that he misled you in that respect?

A. No, I do not. As a matter of fact, I believe there was less water. I can support the doctor in that.

Q. He also told you that this fault had caused more or less shearing and displacement along subsidiary fractures with rotation of minor blocks and crushing in certain areas, and that after you passed Station 120 plus 00 that he thought the cherts formation would be likely to be remarkably regular?

A. Yes.

Q. Now, according to your testimony respecting the Claremont Tunnel, you also had a like situation in the Claremont Tunnel, near the areas at the fault zone and as you passed in, after a few feet, as you said I think this morning, possibly 190 feet, your conditions improved, you got good ground.

A. I made mention this morning that 196 feet covered practically [862] all of the bad ground, according to my letter.

Q. You also stated there was about 120 feet of bad ground beyond the point where you made this barrel or concrete lining to take care of swell and fire, and then the balance of this 70 feet was spread out somewhere in layers or zones as you went far-

(Testimony of Lewis Michael Larson.)

ther east in the cherts; is that a fair statement?

A. Yes. I will say to my recollection that they were close to the major fault. That is my recollection.

Q. That is exactly what I was trying to refer to in his saying that you might expect to find subsidiary fractures with rotation of minor blocks and crushing in certain zones, as you passed from the west end toward the east, and that after you got past station 120 going toward the east that the structure appeared to be remarkably regular, although there are present some minor faults and crushed zones. That is what was found in the tunnel, is it not?

A. I am really not in a position to say positively. I have heard that they found a crushed area, I have heard that there was none of it self-supporting.

Q. You have told us that none of the tunnel was self-supporting.

A. Keeping in mind that I am speaking now from hearsay and not observation.

Q. You are testifying in a dual capacity here, as I understand it, as a tunnel expert, on the one hand, and you are changing over to testify to facts, and you testified as an expert that there was no part of this tunnel that was self-supporting.

A. That is my understanding.

Q. That is your testimony? A. Yes.

Q. Now, then, Dr. Louderback, with respect to the cherts, and the matter that I have just referred

(Testimony of Lewis Michael Larson.)

to, predicted that you might expect zones of crushing in the cherts.

A. Yes, if you limit [863] it to his general statement.

Q. Or to his specific statement, and your lode star is the general statement at the end?

A. Where he said it would be self-supporting.

Q. But as you read this report you saw these words, "although there are present some minor faults and crushed zones"?

A. I saw that, and then turned to his definition of what that was.

Q. You ignored the specific and went to the general?

Mr. Smith: He did not say ignored.

A. I did not ignore it, but it helped me put the interpretation on those general remarks.

Mr. Tinning: That means that you eliminated the specific and accepted the general?

A. No, I should say Doctor Louderback eliminated them.

Q. That is your conclusion?

A. That is my conclusion, and that is what I understood in his report.

Q. What did you do?

A. I concluded the formation from his conclusions, which stated that the ground would be self-supporting.

Q. And in taking his generalization you elim-

(Testimony of Lewis Michael Larson.)

inated the provision that we have just referred to on page 15 of the report?

A. In very large measure I relied, almost entirely, I might say, on Dr. Louderback's conclusions.

Q. You did not accept as a warning in arriving at those conclusions what he specifically says, "although there are present some minor faults and crushed zones"?

A. He had eliminated them and consequently I eliminated them.

Q. In other words, that is your interpretation that you eliminated them?

A. That is my understanding of the specifications.

Q. And upon that kind of an understanding you prepared your estimate on the basis of this tunnel being all in self-supporting ground?

A. Within limits—within the limits that Dr. Louder- [864] back stated.

Q. "The fault zone will be occupied by broken and possibly crushed cherts." Did you eliminate that? A. No, I did not.

Q. Did you eliminate his statement that driving through the cherts that the combination of crushed zones and water presented difficulties?

A. Might I ask you what you are referring to?

Q. I am referring to the top of page 16, but I am paraphrasing now.

A. Might I ask this, it is hard to follow. This refers to the fault zone, doesn't it?

(Testimony of Lewis Michael Larson.)

Q. The fault zone was referred to on page 15. Now we are coming to another paragraph on the top of page 16.

> "In driving through the cherts, the combination of crushed zones and water often presents difficulties. The crushed rock (with or without water) may flow out into the tunnel almost like quicksand, or, if it holds together better, it may develop considerable pressure until the water pressure is relieved by free flow into the tunnel."

Did you consider that in arriving at your opinion that this tunnel would be self-supporting throughout?

A. I did to this extent, Mr. Tinning, that often presents difficulties; he did not state that this tunnel would present difficulties, as I understand it, but he said in driving through cherts water often presents difficulties. That, to me——

Q. (Interrupting): You did not think that he was talking——

Mr. Smith: Just a minute: He was right in the middle of a sentence.

A. Is a general statement of what might be found in the cherts formation, which was limited in terms by his own conclusion, his own definition.

Mr. Tinning: Q. That was your own conclusion in reading this [865] report?

A. That was my conclusion.

(Testimony of Lewis Michael Larson.)

Q. You thought that this was a general statement, and that the final statement was the specific statement with respect to this tunnel?

A. Yes, that he had made his own definition of his generalization, and made a specific statement.

Q. I will go down two sentences.

> "In certain cases where a broken or crushed mass of rock lies within intersecting fault planes, and thereby loses its bond to surrounding rock, it may slump down into the open working, leaving a chamber in the wall or roof."

Do you mean to say that you thought that was referring to what might occur in some other tunnel rather than in the Broadway Tunnel?

A. I considered that as a general statement of things that might be found in cherts, irrespective of any particular tunnel, a general condition that he had observed, and I can readily see he thought of other tunnels as well as the Broadway Tunnel.

> Q. "If this is experienced at all in the proposed tunnel it will probably be in the southwestern fault zone mentioned above. If such unsupported blocks or masses are met, it would probably be best to let them down or remove them, before placing the concrete of the completed structure."

That was a specific recommendation that that condition was met with in this tunnel? A. Yes, if.

(Testimony of Lewis Michael Larson.)

Q. Did you in preparing your estimate, consider that recommendation if that condition was found?

A. No, let me explain. In my method of driving I had prepared to meet a condition where it would not be necessary in my judgment to let down masses of material. I intended to give support by the timbers that I indicated in my plan of operation.

Q. Do you think that the full face method of excavating which you indicated as your proposed method would hold blocks in the [866] roof?

A. The full face method is intended to be in ground that is self-supporting and in that case there would be no reason to prevent blocks dropping out of the roof; otherwise it would not be self-supporting ground.

Q. But still you did not plan to go to the full face method until you got into the cherts?

A. Not until I got through the fault zone of the cherts.

Q. You did not say that. May I see Plaintiff's Exhibit 27, please? The shaded areas indicate tunnel sections where permanent timbering was anticipated?

A. Yes, but a provision was made in the specifications in addition to that, an estimate of 100 feet of the Type B for each of the two tunnels, and in addition to that 100 feet of liner plate, or, in other words, I made provision in my plans or in my estimate to take care of approximately 30 per cent. of the tunnel whether necessary or not, for ground that

(Testimony of Lewis Michael Larson.)

would not be considered self-supporting, and the other 70 per cent. would be every such point which would probably be a little in advance of the broken formation, but within a few feet of the east portal.

Q. Then this diagram, Plaintiff's Exhibit 27, where the legend says the shaded areas indicate tunnel sections where permanent timbering was anticipated, did not represent the exact section where you planned to leave permanent timbers, but was simply a statement of quantity?

A. A statement of quantity would be more nearly accurate.

Q. Then when you testified that your section BB and your section AA, as shown in Plaintiff's Exhibit No. 27 were the sections in which you proposed to maintain permanent timbers you did not mean that they would occupy the first 760 feet of the tunnel, as you testified?

A. Let me make that clear. I will first of all say no. [867]

Q. Your answer is "No"?

A. No. The grouping together of the points that needed support in so far as an estimate is concerned, for convenience in the estimate, was brought together to cover the distance indicated there, coupled with a possible additional hundred feet of liner plates, and an additional hundred feet—I am speaking now of the individual tunnels—of the type B section, which seemed to be an ample safeguard

(Testimony of Lewis Michael Larson.)

against any condition that might arise in ground not self-supporting.

Q. Then it is your testimony now that the 720 feet of Section BB shown in your exhibit 27 was not intended to occupy the first 720 feet after you left the 110 feet of lining in the north tunnel, but was to be scattered throughout the tunnel at any place that it might be required?

A. That is true, if necessary—if necessary.

Q. But isn't it a fact that when you testified you said that it was to keep that first 720 feet of the wall plate drift?

A. If I did, Mr. Tinning, the thought was for estimating purposes.

Q. Isn't it true that this exhibit shows the timbering in the east portal, in the 20-foot range that you referred to, and shows the permanent timbers, which you said were about 40 feet, and also 720 feet to the Wildcat fault?

A. In addition, yes, an additional 720 feet to 60 feet, adding the east and west timber section; that amount of timber I estimated in getting the bids ready.

Q. Isn't it true that this note says, "Shaded areas indicate tunnel sections where permanent timbering was anticipated"?

A. In the estimate, yes, but not in the thought back of the estimate.

Q. Are you going to change from full face to drift as you went through this tunnel?

(Testimony of Lewis Michael Larson.)

A. If necessary. I did not contemplate it would be necessary because Dr. Louderback said it was self-supporting.

Q. If it was not going to be necessary why were you going to require permanent timbers after you left Wildcat fault? [868]

A. As a precautionary measure; I did not say I am going to use them; the way I answered you was, my thought was just as Dr. Louderback stated, I included liner plates, I included the Type B section, but I did not say I intended to use it; it was merely a precautionary measure added to make my estimate safe.

Q. But it is a fact, is it not, if you desired to use permanent timbers or heavy materials, you would have to have some method other than the open face method to drive through? A. If, yes.

Q. If you found them? A. Yes.

Q. And you included that "if" in your estimate, didn't you? A. I don't know that I did.

Q. Mr. Larson, isn't it a fact that you anticipated no change in the method that you proposed in driving this tunnel from the time you left the point at 760 feet past the west portal until you arrived 20 feet from the east portal, you planned to drive a full open section?

A. That is approximately correct, Mr. Tinning, I won't say you are limiting it correctly, 760 feet may not be, but if you subtract 30 per cent. from

(Testimony of Lewis Michael Larson.)

the total length of the tunnel and put it all together in one group, then you have the correct answer.

Q. You say that I did not state it correctly. I am stating exactly what is shown on your diagram and to which you testified, am I not?

A. I believe you are.

Q. So I have stated it correctly.

A. You have stated it correctly as you understood it, yes.

Q. You are now qualifying what was shown on your diagram some week after you testified to it by saying that the shaded area did not represent where you expected to put permanent timbers, but that you expected to put permanent timbers at places where and if it became necessary. That is correct, is not?

A. To a certain [869] extent, yes, it is correct, but I am speaking of my estimate and the grouping for the purpose of making my estimate understandable and simple to people for whom I was working. My thought, as I said before, is that there would be about 70 per cent. of this tunnel in the continuous, without any change being necessary from the full face system, and that the timber that is indicated there is largely precautionary in amount.

Q. Mr. Larson, I wonder if you will look at Exhibit 27 and look at Section CC, full faced cherts 10 feet round, Orindan five feet round, timbering 12

(Testimony of Lewis Michael Larson.)

by 12, set on 5-foot centers, re-used timber three times, total use 4. A. That is correct.

Q. Now, your full faced operation as set up was a case when you passed Wildcat fault and continued until you struck the east portal?

A. Approximately.

Q. And when you were driving through the Monterey Sandstone you were using a wall plate for ground that was heavier than your anticipation, that the cherts required more support, and in that section of 720 feet you were planning to leave all of the timbers, if required, and there is nothing on your diagram that indicates that you proposed to leave any permanent timbering anywhere after you left the Wildcat fault?

A. I did not intend to, except as I testified to in my earlier statement for the purpose of the protection of the men who might be working under, to leave spiling in and carry that spiling down, the piling support down.

Q. We are talking now about the 12 by 12 timbers shown on Section CC, which you were going to use four times, and that was all in the cherts?

A. In the cherts and Orindan.

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.)

[870]

(Testimony of Lewis Michael Larson.)

Afternoon Session,
Thursday, April 21, 1938,
2:00 o'Clock P. M.

LEWIS MICHAEL LARSON,

Cross Examination (continued)

Mr. Tinning: Q. Mr. Larson, in preparing your estimate, did you have in mind the provisions of the certain paragraph on page 16 of Dr. Louderback's report, in which he says:

> "Based on experience gained from other tunnels in the cherts, and judging from long exposed steep quarry faces in the same formation, it may be expected that after driving, and after the material in the immediate vicinity of the tunnel has come to equilibrium, the rock will stand well and need no support"?

A. I knew of that; and I had read that conclusion, and gave it consideration, as I understood the report. In this particular instance, it would refer, in my judgment, more particularly to the faulted zone.

Q. Well, the Doctor refers to the faulted zone, in the next sentence of the paragraph, doesn't he?

A. He refers to the faulted zone, in the next sentence.

Q. But you took the preceding sentence, then, in your consideration, as referring only to the faulted zone?

(Testimony of Lewis Michael Larson.)

A. The reason of my doing that, Mr. Tinning——

Q. Well, will you answer "Yes" or "No," and then explain?

A. May I have the question repeated?

(Pending question read by the reporter.)

The Witness: A. Yes, chiefly.

Mr. Tinning: Q. Then, the following, or third, sentence in the paragraph:

> "Even the part in the fault zone is likely to stand well after the driving through it is completed. This was the experience in the [871] Claremont Tunnel."

Do you still believe the first sentence refers only to the portions of the tunnel material adjacent to the tunnel in the immediate vicinity of the faulted zone?

A. Yes, I do, in view of his conclusion.

The Court: Just so I may find myself:

Q. You refer repeatedly to "conclusions." What is that?

A. That is on page 18, your Honor.

Q. Under the heading "Tunnel in General"?

A. Yes, "Tunnel in General."

Q. That consists of pages 18 and 19?

A. No. 18, only.

Q. Page 18, only? A. Yes, sir.

Mr. Tinning: 19, your Honor, deals with the outside.

(Testimony of Lewis Michael Larson.)

The Court: Yes. He referred to the conclusions, and I was looking them over; and they are labelled here "Tunnel in General." That is all I wanted. I just wanted to locate what he had in mind. You may proceed.

Mr. Tinning: Q. Now, passing to the "Orinda Formation":

> "From about Station 130 (as judged by surface dip, but it may be farther along in the tunnel as the dip may steepen underground), to the east portal of the proposed tunnel, the bore will be entirely in the Orinda formation—— This formation consists of a series of alternations of beds of consolidated gravel, clayey sandstone, and sandy clays, which were laid down as fresh water deposits."

When you passed through the drift running from the east portal westerly toward the west in the tunnel, in your inspection made about September of 1935, did you observe the formation that were passed through by these drifts? A. Roughly.

Q. Would you say that they are predicted by Dr. Louderback's report?

A. My conclusion, drawn at that time—it was two or three months, I think, after they were driven —was that the formation was not so [872] firm as the Doctor had intended to convey in his general conclusion.

(Testimony of Lewis Michael Larson.)

Q. Now, Mr. Larson, we are discussing these specific statements made under the heading "The Orinda Formation," on page 16; and particularly directing your attention to the portion thereof which states:

> "This formation consists of a series of alternations of beds of consolidated gravel, clayey sandstone, and sandy clays——"

Were the materials described in this paragraph, in general, the type of materials that were penetrated by the drifts referred to in my earlier question?

A. Yes, particularly in this sentence you have just read.

> Q. "Tunnel driving is generally rapid in the sandstones and clays, somewhat slover in the gravels, which are naturally harder on drill steel. The formation usually breaks rather blocky and often develops a certain amount of overbreak."

Now, yesterday, in your testimony regarding the Orindan formation in the Claremont Tunnel, I understood you to say that, when you got in the gravels, you found, as Mr. Hulin had predicted, the gravel would be hard on drill steel?

A. That is correct.

Q. In other words, it was harder to drill?

A. Yes.

(Testimony of Lewis Michael Larson.)

Q. From your observation of the material in the Broadway Tunnel, made at the time when you went through those drifts, or any other knowledge that you obtained, would you say that Dr. Louderback's report deviated from what was actually encountered in the Orindan formation?

A. Not as to the method in which the material was laid down, nor the different kinds of material that would be encountered; but I concluded that the firmness that was intended by the remarks of Dr. Louderback on the Orindan formation were not as firm as he intended to convey.

Q. Well, is there any statement in what I have just gone over with [873] you, regarding the Orinda formation and firmness? A. Not yet.

> Q. "Water and its Effects." "Water is usually in very slight amount in the Orinda formation, coming in along certain gravels and coarse sands, or seeping along minor faults or shear zones. Most of the formation is likely to be dry."

Did you notice, when you went over those drifts we have been referring to, whether or not there was any considerable quantity of water?

A. I did not see any considerable quantity.

Q. In other words, the Doctor's predictions that these are likely to be dry were pretty well borne out by the facts, weren't they?

A. At the time the trip was made, there was a little mud in the immediate vicinity; but it was

(Testimony of Lewis Michael Larson.)

impossible for me to tell just the source of that, whether that came from drilling with the use of wet jack hammers, or whether it was from any cause, I was unable, at that time, to determine, or at least I did not go to that point; it was not necessary for me to try to determine the source.

Q. Well, there was no considerable quantity of water there? A. Very little of it.

Q. You encountered water in various stations in the Claremont Tunnel, in going through the Orinda, didn't you?

A. In the cemented gravels, we would encounter water, in the Claremont Tunnel; and when we shot the round, there was no evidence at all of water; where the water went to, I am still unable to say; it disappeared entirely.

Q. One of the mysteries of tunnel excavation?

A. One of the mysteries of tunnel excavation.

Q. Would you say the water in the Claremont Tunnel was comparable with that you saw in the Broadway Tunnel, in the Orindan?

A. My recollection, now, Mr. Tinning, is that there was more moisture in these drifts to which you are referring, in the Broadway [874] Tunnel, than we encountered in any portion of the Orindan formation in the Claremont Tunnel.

Q. Well, I will just call your attention to your testimony regarding the swelling ground that you encountered in the Orindan. We went over it yesterday: The Claremont Tunnel, about 500 feet be-

(Testimony of Lewis Michael Larson.)

fore you reached the limestone and the lava— Do you remember that section?

A. I remember that section.

Q. There was plenty of water there?

A. I think there was not one drop.

Q. No drop?

A. I don't think there was one drop in that whole section that you are speaking of. You are speaking of the swelling ground section, now, aren't you?

Q. Yes.

A. I think there was not one drop.

Q. In the Orindan, in the vicinity of the swelling section, wasn't it a fact there was water that dripped out of the opening, after it was excavated, and had to be carried away?

A. Not that I have any recollection of.

Q. What about this stuff that mucked like wool, you said, when it was wet; you said it was resilient?

A. That was in the immediate vicinity of the change of formations, from the Orindan and what we have determined to be the limestone, before we struck a little water there.

Q. Then, it is your testimony that, after you got away from the immediate effect of the fault at the edge of the cherts, when you passed into the Orindan and got into what was the better Orindan, that it was substantially dry?

A. I have no recollection of any water excepting

(Testimony of Lewis Michael Larson.)

what I have enumerated in the conglomerate, which disappeared, as I have stated.

Q. The conglomerate is one of the component parts of that Orindan? A. Yes, it is. [875]

Q. Possibly there was water in that portion of the tunnel?

A. Possibly there was water in that portion of the tunnel when we drilled, or when we shot.

Q. Did you see any gravel in the Broadway Tunnel when you passed through those drifts?

A. I believe I did. My recollection is not too clear on that, but I think I found gravel formation there.

Q. In other words, as you passed through the Orindan you found the typical Orinda formation?

A. I think I did.

Q. Gravel, Orinda, or strata; then——

A. If you leave the water out, yes, because I am not competent to say whether that was present in the formation or not.

Q. Did you consider this:

"While these sandstones and clays are naturally mostly dry, they are generally affected by contact with water. In fact they are sensitive to both drying and wetting, and a chunk removed from underground and exposed above ground usually cracks and slacks in the sun, and breaks down into a soft clay or mud in the rain. While the beds are firm, and when dry stand well underground, they carry but little natural

(Testimony of Lewis Michael Larson.)

cementing material, except in occasional layers. These cemented layers remain firm even on exposure to sun or water."

Did you consider that? A. I did.

Q. Did you consider that it is firm and stands well when protected from water action and air slacking? A. I did.

Q. Did you consider what Dr. Louderback stated in his report, on page 17,—that it was likely, in this Broadway Tunnel, that you would not encounter as much water as you had at the lower elevation of the Claremont Tunnel? A. I noted that.

Q. Did you have in mind, in your proposed method of construction, to set up protection, if you thought you would, during construction, encounter the Orinda formation,—water in the Orinda formation that [876] might come from other parts of the tunnel?

A. I did. We were supposed to be driving from the west end; and it would be difficult for water to come up a 4 per cent grade and come into the Orinda formation even though it was actually present in the cherts or any other formation that lay farther downgrade.

Q. Were the east portal portions of the tunnel excavated in any respect when you left on April 30, 1935?

A. I believe, about 30 feet; I am not sure as to the extent; but, from going through these Company records, it is my conviction that somewhere in the

(Testimony of Lewis Michael Larson.)

vicinity of 30 feet had been excavated in addition to the ground necessary for the erection of the portal building.

Q. Which was not in the tunnel proper; it was an open cut where that building was built?

A. That is true.

Q. Did you observe that area just before you left? A. No; I did not.

Q. You saw it, of course, when you came back at the end of August?

A. Yes, I saw it at that time.

Q. Did you observe the condition, then, at the east portal drift, or the east portal of the tunnel?

A. Rather roughly. My interest lay in the inspection of the drifts rather than the outside. The outside seemed to be secure. I could not tell you what the real conditions were in the open cut.

Q. Could you tell us what the conditions were within, say, approximately 30 feet, on the tunnel ring that you saw was excavated there?

A. Only in this particular: that it seemed to be safe; the timber was holding.

Q. In other words, it was timbered?

A. It was timbered.

Q. And had been, because your impression is there was about 30 feet of excavation there when you left at the end of April—it had been, [877] for three or four months, timbered and left open to slacking effect of the air, or any water, that might get into that pit?

(Testimony of Lewis Michael Larson.)

A. I believe that would be undeniable.

Q. Dr. Louderback's report, as we have just said, particularly calls attention to the desirability of preventing air slacking or water effect on the Orindan?

A. Yes. Of course, I don't know just what degree—what I mean by the time element—how long a period he had in mind.

Q. Referring to the tunnel, in general, when you say that you have made this your cardinal principle, or the basis of your conclusion of what Dr. Louderback meant, did you mean to say that you understood that this applied to the entire length of the tunnel,—the generalization?

A. I think that it refers more particularly to the Orindan and the cherts sections.

Q. As a matter of fact, in the second paragraph of the generalizations, does not Dr. Louderback say:

> "Throughout the main belt of cherts, the rocks may be expected to be entirely self-supporting indefinitely; in the fault belt of cherts and in the Orindan, with proper care in driving and handling, the rocks should stand well and be self-supporting except possibly along certain shear zones which may require local reenforcement to withstand local pressure (not general weight)."

I understood you to say that, from reading these paragraphs that make up the generalization, you

(Testimony of Lewis Michael Larson.)

concluded that, through the major portion of the tunnel, the material would stand indefinitely, without any support, against great pressure?

A. I think that is— Yes; I will say, I think that is the importance of that.

Q. That was your interpretation? A. Yes.

Q. In other words, that in a tunnel which, as you examined the plans, called for a permanent lining of reinforced concrete 2 feet [878] in thickness at the crown and 5 feet at the base, you assumed that no permanent support was required to hold up the mass of that mountain above that tunnel?

A. Yes; I assumed that Dr. Louderback had stated that; and, of course, I must qualify that by saying that was not intended for 100 years. My interpretation would be during the construction period. I also say it was a proper construction to line tunnels, whether the rock is self-sustaining or not, with the spilings; and, in addition to that, that you have to be careful. I could not conclude, from the concrete lining, that Dr. Louderback's conclusions were wrong, as I understood them.

Q. Did you conclude that the design was unnecessarily heavy?

A. I gave no thought to that at all. That was not my function.

Q. You gave no consideration to the fact that it appeared on these plans that a lining 5 feet in thickness at the base and 2 feet in thickness at the top, with reinforcing, by the provisions in the specifica-

(Testimony of Lewis Michael Larson.)

tions that permitted the District Engineer to add whatever steel he thought was necessary and pay you your bid price for it; you did not give any consideration that that might be a lining to be placed in this tunnel, which you say you thought was going to be, in the main, self-supporting?

A. Yes; I assumed that that lining would be placed there, because the plan specifically stated it would be; but I did not conclude that had anything to do with the construction feature or the ability of the ground to stand unsupported during the construction period. The other was construction detail, and in the mind of the Engineer; and whatever had influenced him was not my function to try to decipher, nor the amount of reinforcing, nor the amount of concrete, nor the reason therefor; it did not influence me to stop. The conditions were different from those specifications or express statements, as I understood them, in Dr. Louderback's general conclusions. [879]

Q. Then, as you understood the general conclusions, you eliminated all that had been said before, you eliminated all that had been shown in the plans and specifications, with respect to the thickness of the lining that was to be placed in the tunnel?

A. Yes; with regard to the thickness of the lining that was to be placed in the tunnel, because it, in itself, did not differentiate in any particular location; but I must recall, again, that, in the specifications, there is the requirement for special permission

(Testimony of Lewis Michael Larson.)

to leave the timbers in. If it were there, if it had been placed there for construction purposes, it must be taken out, indicating a conclusion, the same as I had drawn, in Dr. Louderback's report, that, in the main, it would be self-supporting ground, or in construction. That was my interpretation.

Q. You thought the specifications were attempting to predict the conditions that would be encountered in the ground?

A. I thought the specifications were attempting, or were influenced by a thought similar to my own: that the ground would be self-sustaining during construction.

Q. Now, as a matter of fact, this very statement that we have been over, says that, in the fault belt of the cherts and Orindan, with proper care in driving and handling, the rocks should stand well and be self-supporting except possibly along certain shear zones which may require local reenforcement to withstand local pressure, not general weight. You understood from that, did you, that you would, at certain places, expect to find problems that you would have to meet, in driving this tunnel; you would have to support that in some way, as you went through?

A. I did; and I made special provision for that, by timbering it at 5 foot sets all the way through the tunnel, and removing that timber only when the concrete was brought up. [880]

(Testimony of Lewis Michael Larson.)

Q. This statement at the conclusion of the report following the title "Tunnel in General" is what you base your statement upon, or what you based your assumption upon that you would find throughout the tunnel the majority of the tunnel rock which required no substantial support in construction? A. That is correct.

Q. Mr. Larson, as an engineer expert, you keep familiar with the construction projects you stated and read the Western Construction News and other publications? A. I endeavored to.

Q. Did you read this article that appeared in the Western Construction News and Highway Builder of July, 1933, reading from page 318:

> "Both tunnel sections will be 35 feet out to out in excavation and 34 feet high. A reinforced concrete lining will be placed throughout, varying from 2 feet thick at the crown of the arch to 5 feet at the haunch. The tunnel is expected to require support for practically the entire length of each bore and the contractor will be allowed to place either timber sets and lagging or steel ribs and liner plates back of the concrete. Where practicable, the upper part of the arch is to be poured last so as to key the tunnel structure. Concrete specifications are based upon cement content and slump.
>
> "Tunnel muck is classified as Monterey sandstone for the first 600-700 feet from the west portal, Claremont cherts for 1200 feet, and

(Testimony of Lewis Michael Larson.)

Orindan formation for the remaining distance. A geological report on the tunnel has been prepared by George D. Louderback, consulting geologist, and will be available for inspection at the office of the District Engineer."

Did you see that article?

A. Not until within the last two weeks.

Q. So that at the time you did not have it in mind?

A. I did not have it in mind. If I had had it in mind I would wonder why Dr. Louderback had apparently disregarded that, if he thought it [881] worthy of giving consideration to, because the conclusion here must be very different from what you have just read.

Q. Of course, this article was published with respect to the geological report that you have there.

A. I could not know the source of the information.

Mr. Tinning: We will offer this article in evidence.

Mr. Marrin: For what purpose?

Mr. Tinning: For the purpose of expert knowledge or lack of knowledge.

Mr. Marrin: We object to that as immaterial, irrelevant, and incompetent. The witness has testified that he did not know anything about it prior to the time the bid was placed; we object to it further as being pure hearsay.

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: Will you stipulate that the Bechtal Company was a subscriber to the Western Construction News?

Mr. Marrin: I could not, because I don't know whether they were, or not.

Mr. Wittschen: We will prove tha .

Mr. Marrin: It is a hearsay statement.

Mr. Alexander: The same objection.

Mr. Marrin: It does not show the sou ce of the information, it is the rankest kind of hearsay; We object to its introduction.

The Court: The Court will sustain an objection at this time.

Mr. Tinning: Exception.

Q. You testified here last week with respect to the method that you adopted in going underground in this tunnel, that the method shown on the model which has been introduced here as Plaintiff's Exhibit No. 28 was what you purposed using in getting under what you assumed at that time would be 40 feet at the west portal.

A. With certain exceptions, Mr. Tinning. I had not planned to [882] make the lower drift as large. I had planned on making the other drifts larger. This exhibit here is the result of a condition that was found that forced me to adopt this particular design.

Q. Then perhaps I did not understand your testimony. Then Plaintiff's Exhibit No. 28 represents the manner in which you actually drove?

(Testimony of Lewis Michael Larson.)

A. The manner in which I actually drove, and approximated the manner that I contemplated driving.

Q. And Plaintiff's Exhibit 27, Section AA, is a diagram of what you proposed?

A. What I proposed.

Q. Now, I believe you stated that when you got into this problem, actually working it out, you found it necessary to go into a 13 drift operation?

A. That is true.

Q. Does this model show a 13-drift operation?

A. It is lacking in the fact that the posts have been removed, that bring out clearly the drifts, but the segments, if you will count the segments they will show you that there are 13 drifts present.

The Court: Indicate that so that I may follow you.

A. These, your Honor, are posts and segments, and when I refer to the number that would make up 13 drifts, and some of the information is wanting in driving a drift, we have posts at the contact of the segment timbers carrying down to the core. Those have not been introduced in this particular model.

Q. I understand, but how do you make up your 13?

A. Here would be 1, 2, 3, 4, 5, and 6; the top drift would be 7, and then there are six on the other side, making a total of 13.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Q. Mr. Larson, just a moment, please, while you are on your feet. A drift is indicated on this model by perpendicular posts and a cap?

A. Correct.

Q. And is it not a fact that in driving this tunnel you went up with four drifts on each side, as indicated in the model, to [883] the point that I am pointing to at about the point opposite where the core is shown on this model?

A. I went up with four drifts to this point, yes.

Q. Each one of these drifts has a cap upon it, as shown here, posts on the outside, and posts in the interior with lagging against the core; that is correct, is it not?

A. If the testimony is to be technical I shall have to say that after you reach the spring line then we term them segments instead of posts.

Q. But to answer the question specifically, you have in a drift an enclosure on three sides, the top and the two sides that are either perpendicular or angular to meet the design of the tunnel outline up to and including the fourth drift? A. Yes.

Q. Isn't it a fact that in your excavation of both the south and north tunnels the distance of your first operation, that you took out a ring between the top of the fourth drift, all in one operation?

A. That is not a fact.

Q. Isn't it a fact that each segment was placed and held a timber stulled against the core, and that

(Testimony of Lewis Michael Larson.)

this material was not taken out by driving ahead under one segment, but was taken out as a complete operation at the face of the tunnel on the top of the core?

A. Generally, that is not the fact. Generally, these drifts were advanced as individual drifts. There might have been a very few exceptions where the material was stiff enough that I could carry possibly three of these drifts parallel, but that is the exception, and not the rule.

Q. Isn't it a fact that these timbers were carried up, that segment timbers were carried up by excavation into the face and held up and stulled against the top of the timber, which was a cap of the fourth drift, and then the next segment toward the center, or next to the crown, were carried up and stulled likewise against the cap?

A. I think this one, here, was carried to the core. That [884] is my recollection.

Q. Will you look at the model near the part that indicates the unexcavated ground and see if those timbers which show on the last ring at the top do not indicate the way in which that was supported?

A. It indicates the support at this point, which is a segment, which is carried down to this cap.

Q. What is this section?

A. In this particular case it would be E section.

Q. The E segment? A. The E segment.

Q. What was the distance between the bottom of the E segment and the top of the cap of the fourth drift?

(Testimony of Lewis Michael Larson.)

A. I cannot recall it now, I should say probably four feet.

Q. And would you say that that was drifted out and was not taken out by the surface by one operation across the face?

A. I am very sure in the major portion of the tunnel that that was not the case; there might have been exceptions to that.

Q. We are just talking about going underground in the 110 feet of the north tunnel and 92 feet in the other tunnel.

A. Yes, I am trying to make the explanation here that to the best of my recollection that was not the case in general.

Q. You do not think that that crown was stoped out?

A. It was stoped out after you reached the lower drift, the material then was dropped into the drift below.

Q. Isn't it a fact that it was taken out as one operation and that the only timbers you had, you had no lagging in this crown, were timbers holding up your sides as you put them in?

A. No, that could not be true. If I understand you correctly in this case—do you mean that I was dumping the material over the face of the core?

Q. No, I assume you would be dumping the material as it was stoped [885] out from the entire ring above four feet into the third drift.

(Testimony of Lewis Michael Larson.)

A. Yes, that is what I was doing, and carrying it up to the lower drift, getting the support from this segment down to the core.

Q. But there was no lagging, there was no partition, there were no caps, and there were no interior walls in the drift, as you have shown, in drifts 1, 2, 3, and 4? A. Not in this one here?

Q. Yes.

A. It is my best recollection that this post that carried down to the cap of No. 4 had lagging against to prevent this material from falling in.

Q. Are you depending on your recollection?

A. I am depending on my recollection.

Q. I will show you Plaintiff's Exhibit No. 40, which appears to be a photograph of the west portal face from the right side of the center line, August 10, 1934—I am not trying to confuse you, but I understood your testimony to be that these two drifts later became part of the Drift No. 1, one in the left tunnel and one in the right tunnel.

A. No, that is a misstatement, Mr. Tinning. They were driven in at that time with a view to trying to carry on the excavation by this to the right and this to the left of the attempted drift.

Q. In other words, these two drifts that are here shown were actually on the center line of the tunnel?

A. As nearly as we could make them.

Q. And when you went underground, in starting, I think you said, about August 23rd? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. You placed one drift that would be the right-hand drift to the right of this attempted drift?

A. Yes.

Q. And another one to the left? A. Yes.

Q. And when you started on the north tunnel you likewise show the drift in here and a drift—when I say "here," to the right? A. Yes. [886]

Q. Of the original parallel drift and again another one to the left?

A. Yes; to make it clear to you, I first made an attempt to go in that way on account of other work that was going on in advancing that interior, and my recollection is, and I believe it is true, that by the time that I got to going in on the first one, that that was obliterated entirely, that that was no longer there.

Q. That is your general impression of the situation?

A. It is my general impression, and I think it is pretty clear on that.

Q. Now, these drifts numbered 1 right and left, the bottom drift on each side, when you went underground were twelve feet wide each, weren't they?

A. Approximately.

Q. And then you gradually narrowed those down as you went underground and when you were 10 or 20 feet underground you cut them down to 10-foot drifts?

A. I do not believe, Mr. Tinning, that there was any difference in the width of those drifts during

(Testimony of Lewis Michael Larson.)

the whole course of the 92 feet and 110 feet. I have no recollection of crimping it. My reason for making them as wide as they were—let me explain that, it will make it clear—we had four-yard cars, that would hold four yards of material, and on them we put sides to increase the capacity, and that was a definite width; we could not vary to the point where we could not get those cars into the drift; the drift, to begin with, as I recall, was sufficiently wide and no wider than was necessary to allow free movement of the cars. It might be—my recollection is not clear on that—that when I found I could go in there a few yards, I might have taken advantage of it on account of the terrific weight of the ground.

Q. Isn't it a fact that your drifts started in 12 feet and were cut down to 10 feet, and the reason was you had to cut a core in, you had to switch something to key to that line, and you had [887] to have a little extra room to get around the curve into the drift?

A. You are refreshing my memory on that. I remember what the obstruction was now and I will explain it. Right in here was an obstruction——

Q. By "here" you are referring to the north tunnel?

A. On the north tunnel, and in order to get past that obstruction I did have to slice off a little more of the core. I had forgotten that.

Q. Mr. Larson, I am going to show you a series of diagrams which I think depict the actual position

(Testimony of Lewis Michael Larson.)

and the measurement of every timber that went into each of these tunnels in your initial operation.

Mr. Smith: What have you got there, diagrams of the whole 110 feet?

Mr. Tinning: This happens to be the upgrade tunnel, the south tunnel, so it is 92 feet.

Q. I show you some diagrams showing the south tunnel of the west portal.

A. Let me ask you this question, is this the first set that carried no weight?

Q. That is the first set, and I think it would be indicated, I think you will find the portion I am pointing to here.

A. There was a particular reason for my asking that. Apparently the cap on this, this cap, here, is standing entirely on a scab that is held by nails. I would be inclined to challenge that part without having any way of definitely proving I am right, but I am very sure that the weight of the material would forbid the use of that.

Q. Mr. Larson, if you will look at the model you will see you have got a scab on your model.

A. Yes, the scab I think carries down to the footblock there, but you will notice on this one you [888] are not carrying it to the footblock; you are depending entirely on nails that project up above this cap, and carries the weight of the whole cap, and nothing but nails, which makes me question it.

Q. That makes you question it? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. These are measurements that were taken there and of course I was not there, but we will note this exception.

A. Yes, I think there is a mistake there.

Mr. Smith: Which one are you referring to?

Mr. Tinning: We will have to take these by numbers. These diagrams were made at the time from measurements that Mr. Ray, a District employee, took from day to day. You feel that the diagram appearing on page 1, which shows it is in a scab nailed onto a 12 by 12, on that north side of the original center drift is in error because it shows that it must have been nailed against another piece of timber and would not sustain the weight?

A. There is another omission. There is nothing across the top here that we term a scab to prevent that cap from falling off from this support, here, and falling into the tunnel. So I think something has been overlooked.

Q. At that point there was no material on top of this, it was simply a platform to hold the lagging for what afterwards became another drift?

A. Or more accurately stated probably an incompleted set.

Q. What do you mean by incompleted set?

A. The work on the set had not been completed to the stage where the set, itself, was complete.

Q. That is your judgment?

A. That is my judgment, it is so obvious.

Mr. Smith: Does that bear a date?

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Yes, September 16, 1934. [889]

Q. I will now show you page 2, bearing date the 23rd of September, 1934. You will notice that on each of these diagrams there is a statement of the station and the date that the set was placed, and I understand that the measurements were taken immediately following.

A. I see another error here. I am not afraid to challenge this one. These posts against the core in the second drift were of a length whereby the cap rested on the post, not on a scab on this set, but was resting on a scab on this set. And another thing is this, here, may be a support for a shore that ran to the building, but if it is not, then there is an error there, because this post was divided at this line, here—pardon my writing on that.

Q. I think it would be better not to write on it, because they are original records. What you describe is this post, here, above the 12 by 12 plate on the left-hand side of the picture?

A. I do not think his Honor can see this. The point I am making is this, this post was an independent post sawed off at the top of this cap.

Q. Let me get that for the record. This post is a vertical post running from the top of the first drift on the interior right against the core vertically, as shown on here, through drift No. 2 and drift No. 3 to the bottom of the cap of drift No. 3. You say that should be two posts and that the cap of drift No. 1 should extend through? A. Let me illustrate.

(Testimony of Lewis Michael Larson.)

Q. Will you answer my question? A. Yes.

Q. On the other side of the drifts, of these two upper drifts, 2 and 3, instead of being shown as one continuous post, running over to the wall plate on the left drift, to the wall plate at the top of No. 3 drift, that that should also be two posts?

A. And a wall plate in between. [890]

Q. The wall plate in between?

A. Yes, and this member here——

Q. That is the cap of drift No. 2?

A. Yes, was heavier than 3 by 8, and I am confident this shows two 3 by 8s, if that is intended for the post, and I doubt that Mr. Ray had that in mind. I am inclined to think he picked up the support for the stull that runs to the portal building, and I would suggest that you bring that to his attention, because I think he has—that this cap carried over this post and this post set on that cap, and this cap rested on this scab, but in this post here was another wall plate, and that was uniform in the drift on each side.

Q. Those are your suggestions with respect to Sheet 2? A. Yes.

Q. I will hand you now sheet 3, showing a section at 111 plus 72; that would be 5 feet farther into the tunnel than the section shown on sheet 2.

A. This is typical of what I was trying to show over here.

Q. The witness is now pointing to the right-hand drift on sheet No. 3 and stating that the drawing

(Testimony of Lewis Michael Larson.)

there typifies what he says should appear on the left-hand side of sheet No. 2. You will note that Sheet No. 3 shows the left-hand drift in the same manner as you stated was in error. A. Yes.

Q. The same thing applies to it? A. Yes.

Q. And you still think that is an error?

A. I am very confident that is an error.

Q. Now, we go in another four feet on sheet No. 4.

A. Now we are in 8 feet from the first set, as I understand it. The first one is outside.

Q. The first is 111 plus 62 and this is 111 plus 76, that is 14 feet? A. Yes.

Q. And there have been sets intervening from the first set? [891] A. Yes.

Q. This is the fourth set? A. Yes.

Q. 60 feet in? A. Yes. This is typical.

Q. So you have no objection to the general typification of the method which he used?

A. There is only one thing lacking that I should call attention to at this point, the same problem here, there was nothing to keep this post from kicking in from the weight of the core in each instance; a section should be shown in there to hold the other.

Q. When you say "this post" you are referring to the vertical post against the core on the drift on both sides of the tunnel? A. Yes.

Q. Does your model show any scab?

A. I imagine it does, I have not checked it over.

(Testimony of Lewis Michael Larson.)

Q. The next one is approximately four feet further in to the mountain and it shows the post set in the fourth drift on the north or left-hand side of the upgrade tunnel; there seems to be no change in the type of construction on the other side.

A. In carrying up your sets we have not got into the drift on the right-hand side. I want to make the same remarks that the scab has been left off in each instance to keep the post from kicking in.

The Court: On both sides? A. Yes.

Mr. Tinning: Q. In every instance, nowhere in these drawings so far does it show that there is any scab or something similar to a collar brace in the opposite direction between the outside of the permanent timbers and the interior timbers, vertical timbers that are against the core?

A. There are other things lacking that are not intended to be carried in here—you have no collar braces.

Q. You cannot show collar braces very well on a vertical? [892]

A. Yes, it could be shown, but it is not material unless attention is called to the fact that they were.

Q. There is nothing shown that does not pass through the section, and of course the collar braces do not pass through?

A. No, the collar braces would rest on top and underneath the wall plate and run from post to post.

Q. Longitudinal braces? A. Yes.

(Testimony of Lewis Michael Larson.)

Q. Now, we come to another four feet, and we find the same situation, with your four drifts on each side, subject to the same exception that you have taken to the photograph of scabs. Now, on page 8 we have another four feet, five feet this time, from 87 to 92, and you will notice we have spiling on top of your fourth drift and you have vertical timbers running from the core to the end of the segments shown very much as they are shown in the model? A. Yes.

Q. You have testified that each of these was run, each of the places in the crown above the fourth drift was run as a separate set, and taking them together, one, two, three, four, and five drifts, that is how you get your thirteen drifts you said you had?

A. I believe in substance that is correct.

Q. But it is true, is it not, that there was no spiling or lagging on these timbers, that supported the ring section and that those were 4 by 12 timbers that were placed under the end of the segments as they were placed in, with the exception of the cap, which was dropped into place against two 3 by 12 longitudinal timbers?

A. Wall plates—you are not attempting here to show any of the outside supports other than the segments?

Q. The sets, themselves.

A. That would be true in part of the tunnel, but I do not believe it is typical of the whole of the excavation. [893]

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: What we are leading up to,—so there won't be any confusion—the purpose of leading up to this was to show these were not true wall plate drifts.

Mr. Tinning: Q. Looking at 58, you say that is illustrative of the conditions, but you don't believe it is typical of——

A. You get the 4 feet—4 feet apart. These were 4 feet apart.

Q. Sheet No. 9, you see the same condition. Sheet No. 10, you see the same condition depicted; again, Sheet 11, the same condition depicted. Coming to Sheet 12, the same condition depicted. Coming to Sheet 13, 112 plus 12, you see the same condition depicted. At 112 plus 16, on Sheet 14, you see the same condition. At Sheet 15, on the next set, the same condition. Sheet 16, the same condition depicted. Sheet 17, the same condition depicted. Sheet 18, the same condition depicted. Sheet 19, the same condition depicted. Sheet 20, the same condition; and at Station 112 plus 44, the same condition, again. That is the end of your 92-foot excavation, with this drift method; that is 21.

We will offer the diagrams that have been shown to Mr. Larson, as Defendant's Exhibit "J," consisting of 21 original sheets; and, gentlemen, if we would like the privilege of substituting copies at some time in the proceeding, we will be glad to leave these here, but we would not want them to remain.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Yes; no objection to that. Of course, as these have not been identified by the man who made them, I suppose the witness who made them will be available?

Mr. Tinning: He is available at any time you desire him.

Mr. Smith: Was that only one exhibit?

Mr. Tinning: One exhibit.

Mr. Smith: What is the number?

Mr. Tinning: Exhibit "J." [894]

Mr. Smith: Can we withdraw them overnight, if we desire to do so?

The Court: You may take it up with counsel; I don't think you will have any difficulty.

(The sheets were marked "Defendant's Exhibit J.")

Mr. Tinning: Q. Now, on the downgrade tunnel, I show you some sheets, Mr. Larson—and, by "downgrade tunnel," we refer to the north tunnel?

A. Yes, I understand.

Q. The situation is similar with respect to the diagrams: Diagram No. 1 shows the first set of timbers. It seems to be subject to somewhat the same exceptions. You will notice the cap runs completely through?

A. Yes; and the one thing omitted is the scab that keeps it from——

Q. If you will look at your own model down here, you will see that, in some places, you have scabs; and in other places, you do not?

estimony of Lewis Michael Larson.)

A. Yes, that is true. I overlooked that important n, myself.

Mr. Marrin: I might say we did not introduce model as portraying any particular timber that s put in.

Mr. Tinning: I understand.

Mr. Wittschen: It was supposed to have all that have in there, though; it was demonstrative of the timbers used, but not in any one place.

Mr. Tinning: I don't think whether there was a b or anything else in any particular place is anyng except for Mr. Larson's own satisfaction with pect to the accuracy of these diagrams. These grams are offered for the purpose of showing t there were not 13 drifts; that there were 9 fts, going underground.

The Court: The details won't make very much ference, for the purpose of the offer. It only has do with what actually was there. [895]

Mr. Tinning: That is right; that is the purpose these diagrams.

Now, I don't know whether it is necessary to go rough these in detail; it may satisfy you more as their accuracy; but, turning over until we come a 4-drift operation, you will notice at no place is ere any spiling or lagging showing against the e; it is the set,—the timber structure,—that gives the integrity and strength of your timber supt. We go over to Sheet 6, and we find the same uation that was depicted on the other diagram, by

(Testimony of Lewis Michael Larson.)

you; and the core is not even sketched in. Here is your ring segment above the fourth drift, on each side being supported by 4 by 12 timbers, 4 feet 8 inches long, and running around the entire circle of the arch, above the fourth drift. Would you say that substantially shows the condition, as it existed in the tunnel at that point,—Station 111 plus 72?

A. I think there are exceptions to that, that I should note here: In the first place, I don't think there was a uniform use of the size of timbers. My recollection is that that would vary all the way from 8 by 8's, possibly 6 by 6's, and 10 by 10's. The point I am bringing out: this is not a real true illustration, because I have learned, in the last few days, that I had to be very careful.

Q. Let's take Sheet 6, on the north tunnel, where you will see a 6 by 6, two timbers away from the one you pointed out?

A. Yes; but this is not a 6 by 6 here.

Q. Well, I am showing you one, two sticks away from the one you pointed out,—the same kind you called a 6 by 6?

A. Yes; but I still believe there were 6 by 6's, 8 by 8's, and 10 by 10's, at this point.

Q. That may be true. You find, on your next diagram, that you have here, 6 by 6's forming the stulls from the cap on the fourth drift, on each side of the tunnel. You find that again, 6 by 12. [896] You have that, also,—heavier timber, on Sheet 8, being shown there; and on Sheet 9, 6 by 12; 6 by 12 in the same

estimony of Lewis Michael Larson.)

ition; and we come over to Sheet 10, and you find same thing; and on Sheet 11, the same thing. ur center is held by 4 by 12's; and the top of the of the fourth drift, 6 by 12. Doesn't that demonate to you, Mr. Larson, that those sections above fourth drift were not, for instance, stoped out an operation such as I described to you in the er bunch?

A. It does not. I believe we can upset the statent on that, by overwhelming evidence.

Mr. Tinning: We will offer the diagrams in dence.

(The 12 sheets were marked "Defendant's Exbit K.")

The Court: We will take a recess.

(Recess)

Mr. Tinning: Q. Mr. Larson, looking at Plain-'s Exhibit No. 29, I would like to ask you if it not true that, in proper, careful timbering, the gs and timbers should be set, as they are shown this model, so that the timbered section as a unit vertical? A. Vertical; this way.

Q. Yes. It sets in a vertical plane?

A. That was the determination of the District gineer when the question came up whether it ould be a right angle to the grade of the tunnel whether it should be vertical; and the determinan was that it should be vertical.

(Testimony of Lewis Michael Larson.)

Q. Vertical. Well, at any rate, a timber structure, such as a ring, as shown on this model, to have its maximum strength, should be placed in a vertical position, should it not, so the weight is transmitted through it?

A. That it has strongest resistance in a vertical position, I believe, is generally accepted.

Q. And the joint between the so-called plumb posts and the segment should be so cut that, when the timber is installed, you get a full [897] bearing between the two pieces of timber and that joint?

A. The best authority for that,—the Railroad Companies—the first people to go into the tunnel business to any great extent, found it good practice to have the back of the segment open, this way, so that the weight, when the weight came, it would close. If you make it tight, as my hands are, when your weight comes and it spreads like this, then this part of the segment will split off.

Q. When the timber takes the weight for which it is designed, then the joint comes together?

A. That is the theory.

Q. And to obtain the maximum strength, the joint should have full bearing?

A. That is the theory: it should have, yes, if that is possible.

Q. And the timbers which are placed so that they would not follow through a vertical plane, for instance, say, the top of this section which I have my hand upon, this ring were half an inch toward

(Testimony of Lewis Michael Larson.)

me, so that the top, or crown piece, was not in the same vertical plane as the plumb post, would not be a timber, or timbers, that had the same strength as ones which were properly placed?

A. That is obvious.

Q. During the time you were constructing the tunnels, Mr. Larson, you stated already that Dr. Louderback was frequently in the tunnel. Did you see him, during the time you were employed by the Six Companies, after August 29, 1935?

A. After August 29, 1935?

Q. That was when you came back——

A. Yes; I am trying to recall. I think I saw him either August 29th or August 30th; I am not sure as to the exact date, but it was about the 29th.

Q. Where did you see him?

A. I saw him up at the Old Tunnel Road.

Q. Did you have any conversation with him at that time? A. I did.

Q. Did you tell him, at that time, that you thought the conditions encountered were different from those you expected, or that you [898] anticipated, from his report?

A. I have no recollection of having discussed that phase of it at all.

Q. Did you tell him that you thought that the published attack made by Six Companies on his geological report was unfair and unfounded, and that you thought the conditions that you had en-

(Testimony of Lewis Michael Larson.)

countered in the tunnel were fairly predicted by his report?

A. I have absolutely no recollection of that; and I believe that is not a fact.

Q. When you were working in the tunnels, and prior to the time that you left on April 30th, in any of the conferences that you had with Dr. Louderback at the tunnel, did you tell him that the estimate that you had made for Six Companies had been cut down by Mr. S. D. Bechtel from $180,000 to $200,000—an amount somewhere in that neighborhood—between 180,000 and 200,000—because Mr. Bechtel said he had a sentimental reason for wanting to put in a bid that would get the job?

A. I have no recollection of having talked to Dr. Louderback on the estimate in any particular.

Q. Did you make that remark to anyone, at any time?

A. That remark was brought up to me by someone, and I don't know how far the remark was carried. I do believe that I admitted that Mr. Bechtel had said that his father had wished to drive the tunnel, and that there was a sentimental feeling regarding that particular job.

Q. How much was your estimate cut down, by Mr. Bechtel's bid?

A. I believe, later investigation shows only a very, very minor amount. That is what I think the attorneys wished to introduce over your objection.

(Testimony of Lewis Michael Larson.)

Q. How much was it cut down, in your opinion, at the time that the bid was submitted?

A. I am not prepared to say that I knew, at the time that the bid was submitted, that the estimate itself had [899] been cut at all.

Q. You knew it before you left the Company on April 30th, didn't you?

A. Only, I heard these rumors from different sources; and I am not prepared now to say definitely who carried me that information; but there is no evidence, now, nor was there any evidence at that time, that my bid price had been substantially reduced,—that is, nothing tangible.

Q. Did you ever say it to anyone?

A. Not that I recall directly. I know the question was brought up to me, and I discussed it.

Q. Did you ever say it indirectly?

A. Not that I have any knowledge of; not that I have any recollection, at the present time.

Q. Now, you testified, at length, last week, concerning your difficulties in placing concrete in the west portal excavation,—92 feet on one side; and the other, 110 feet. You knew, at the time that you made this bid, or this estimate, that, under the specifications, unless you could place concrete continuously, it was to be placed—where the operation was not continuous, it would have to be placed in one-foot layers; you knew that?

A. I believe—Let me qualify that. I am not sure that I do know that. I believe the specifications say

(Testimony of Lewis Michael Larson.)

that it can be placed in six-foot layers. I might be in error on that. I am not making that as a definite statement; but we will let it stand that it was one foot, for your purpose.

Q. One-foot layers. You stated that the Hackley Gun was selected by you because you knew it was the only approved method at the time; although you knew of the Pumpcrete, you did not feel it had been a tested method by which you cared to try to operate in placing the concrete in this tunnel?

A. I wish to qualify that. I won't say the "only approved method"; but the best and most approved. [900]

Q. Most approved. What were some of the other methods that might have been used?

A. By hand would be one. I don't know whether there would be but the two, right now; I cannot recall except Pneumatic and Hand Placing.

Q. Well, there are other Pneumatic methods, aren't there? A. Yes.

Q. That have been used for 25 years, besides the Pneumatic Gun?

A. Yes; they are numerous; but the principal is identical.

Q. And, of the Pneumatic methods, you have in mind the Hackley Gun was the best?

A. Well, I wouldn't say it was the best; but I was familiar with it. I had placed many thousands of yards with the Hackley Gun.

(Testimony of Lewis Michael Larson.)

Q. Did you ever have a wooden baffle box at any other place when you used the Hackley Gun, other than this Broadway Tunnel?

A. Not that I have any recollection of. There was never a call for it.

Q. You used a steel baffle box in other places, didn't you?

A. I can't recall that I did; I don't believe I did.

Q. Do you know how it was placed in the Sunset Tunnel, where the Hackley Gun was used?

A. No.

Q. You do not know, then, there was a steel baffle box used there, which was of a size that would go between two circles of reinforcing steel,—one on the interior of the arch, and the other at the exterior?

A. I do not. I merely know that Mr. Hackley, who had placed the concrete in the Sunset Tunnel, was chiefly responsible for the suggestion of the method of placing it, and the baffle box idea that we tried out in the Broadway Tunnel.

Q. That baffle box gave you lots of trouble, didn't it? A. A tremendous lot.

Q. It was shattered by the force of the violent inflow of the concrete as it was shot up into the arch? A. Yes. [901]

Q. Into the forms? A. And plugged.

Q. In other words, the material segregated, did it not, and the finest separated out and plugged, and

(Testimony of Lewis Michael Larson.)

the rock went on down; isn't that what you found when you had to clear the plugged lines?

A. Not to the extent that you have described it, Mr. Tinning. I cannot recall, right now, that I found any segregation, on account of the fact that it developed, at the time that I uncovered the plugged line; but I do know, upon placing Pneumatic concrete, there is a tendency for the heavier particles to travel more rapidly than the lighter particles, with a logical result that a certain amount of segregation occurs, in the use of Pneumatic Guns.

Q. That does not give you as good concrete as where you could place a uniform mixture?

A. I think that the Pumpcrete,—if that is what you are driving at,—is much better.

Q. I am not driving at anything, Mr. Larson. I am asking you a question.

A. The uniform mixture is a desirable thing; but I will say this: that we accomplished that very uniformity of mixture in the Claremont Tunnel by shooting the fresh concrete into the concrete then placed; we had a uniform slope there, and shot our first concrete into the old concrete, and it was beautiful concrete as it flowed down the side.

Q. You could not use that method in this tunnel, in the specifications, because you had to place concrete in vertical layers?

A. That was the handicap.

(Testimony of Lewis Michael Larson.)

Q. The reason for that was to make a radial joint, was it not, for the arch?

A. Well, the original specification was: the walls were to be poured up to a certain point, not closer than 2 feet, if I remember that correctly, where they must be keyed; and then, I believe, 7 days later, the arch,—the keyed position,—was to be poured. [902]

Q. Providing it was not poured as a continuous process?

A. Well, this provision was an agreement, between Mr. Boggs and myself, in advance of the estimate, that he would voice no objection to it as——

Q. Well, there was nothing in the specifications to prevent it, was there?

A. I don't know, positively. There may be a positive statement in the specifications on that. My memory is not clear. [903]

Q. In going underground and placing your concrete in these two ring sections, you made in your testimony considerable objection or voiced considerable problems arising from the fact that you had to place your concrete between two sets of reinforcing steel inside of the frames. You said that that caused you additional difficulties?

A. It surely did.

Q. You understood and were told before that the engineer had certain flexibility possible under

(Testimony of Lewis Michael Larson.)

his plans and that he could put additional steel into the sections when in his judgment it was required?

A. That was my belief and understanding.

Q. And that is what was done, too, in the tunnel?

A. That is what was done.

Q. And you had considerable pressures in these rings, did you not, at the mouth?

A. How is that?

Q. You had considerable pressures, you have told us how the stulls bedded into the core and how you had great difficulty holding timbers?

A. Yes.

Q. And how you ran stulls out to the concrete walls at the bottom of the set to hold those timbers in shape so that you could pour and not lose the whole thing?

A. That spiling, let me qualify that, was during the excavation period and stulls to the core was during the excavation and concrete period both.

Q. You had trouble holding the ground, there was extreme pressure in that loose material, that creep and hill wash?

A. Whatever the material was there was a considerable pressure.

Q. So that the District Engineer, in ordering additional steel and additional reinforcing, as he had a right to do under the specifications, was meeting a condition that actually existed?

A. He was, and we did not quarrel about it.

(Testimony of Lewis Michael Larson.)

Q. You found that your baffle box caused slowness in your operation? [904]

A. I did, Mr. Tinning, but the point I would like to bring out in this particular case, at the time we installed the concrete placing unit, I drew a logical conclusion, I think logical, that we could pour one wall at a time; you had two walls that were separated there by probably 25 feet, and I think I remarked at the time that by pouring one wall here and one wall there, if you object to pouring into walls one at a time, why shouldn't you object to pouring in two walls of the portal building at the same time? In this particular place I could not get the point over; I was prepared to pour the one wall at a time and avoid a good deal of this trouble, but that was objected to.

Q. You were not permitted to do it in the south bore?

A. In the south bore, no, but permitted to do it in the north bore.

Q. You had two Hackley guns at the north bore, didn't you?

A. Not mountable, as I recall. I may be mistaken in that.

Q. Isn't it a fact that when you poured the north bore you had two Hackley guns on the job, and you poured one wall from one Hackley gun and the other wall from the other?

A. You may be right. I won't quarrel with you on that.

(Testimony of Lewis Michael Larson.)

Q. You also had difficulty getting concrete mix into your Hackley gun as fast as you could place it with your Hackley gun at times?

A. I believe you are right, though I am not sure of that. I have forgotten the detail.

Q. It was about the first of October that you started to pour this concrete?

A. Approximately.

Q. Well, roughly, the first of October?

A. It was in October, yes.

Q. What concrete plant did the Six Companies have on the job at the time you started to pour these rings?

A. A rented one of K. E. Parker Company. [905]

Q. The mixer that you used was the same mixer that K. E. Parker used in constructing the building, was it not? A. Yes.

Q. That was the same mixer, a ¾ yard mixer?

A. I have forgotten the capacity. We will let it stand at ¾ of a yard.

Q. You found as you were using that mixer that there was difficulty and delay in getting enough material to keep your Hackley gun going?

A. Probably in the north tunnel, but I think we had ample time in the south tunnel.

Q. That is your recollection?

A. That is my recollection.

Q. Then why did you rent or take over the use of the Bohnet mixer, a ½ yard mixer, while you

(Testimony of Lewis Michael Larson.)

were pouring the south tunnel, adding capacity to the one you were renting to Parker?

A. I do not remember having done that, but if we did do it, undoubtedly it was the fact that that would not be able to supply it as fast as we could place it, but we apparently had ample time, because, if my memory is correct, we had an hour and a half between pouring one side and then pouring the other side.

Q. It is true, is it not, that you had a number of trials of different methods of getting the pipe up from the Hackley gun to the baffle box in the forms?

A. I do not recall any trouble of getting the pipe up, but I do remember the problem of making the baffle box work; if we had a problem in getting the pipe up I have forgotten it.

Q. Do you remember that there was brought out there, and you have already testified that you could have any equipment that you wanted, whatever you asked for, there was brought out there a large rubber pressure pipe that you hooked up after you had your trouble with some other pipe, and when you ran the Hackley gun into it it blew up from end to end?

A. No, I do not.

Q. You do not remember that?

A. I do not remember that. [906] I remember we had a long piece of pipe that we used in the forward end with a view to pulling it back.

(Testimony of Lewis Michael Larson.)

Q. Was that a rubber pipe?

A. That might have been the one to which you refer. I don't remember its set-up. It might have been down.

Q. Do you remember a rubber pipe?

A. A rubber hose?

Q. Yes. A. Yes, I remember it.

Q. Don't you remember that it failed on the job, it blew to pieces? A. Yes, I know that.

Q. That delayed you some, didn't it?

A. That delayed some, but it was minor compared to other problems; it added to the delay.

Q. It added to the delay? A. Yes.

Q. Then this baffle box that you had up there, when it would go to pieces, I don't know how far it went to pieces, you know more about that than I, but at least it would not function, and it was shattered by the explosions or expulsion of this material with explosive force so that you would have to have a man up there or men up in there to repair it frequently?

A. I am afraid too frequently.

Q. It was quite a frequent thing?

A. It was quite a frequent occurrence.

Q. You had a great deal of trouble with it?

A. Yes.

Q. When you went over to the north tunnel you did not use that baffle box?

A. No, the District Engineer was willing there to give us cooperation and it helped very materially

(Testimony of Lewis Michael Larson.)

by letting us pour the walls at a height of about 15 feet and pouring one wall and then pouring another, a very material help.

Q. You had two Hackley guns to do it?

A. Possibly.

Q. There was another one on the job before you started to pour? A. That is possible.

Q. During this time when you were having this trouble with the [907] baffle box you mentioned the insistence of the District Representative that you get into these forms and clean off the concrete that stuck to the reinforcing and stuck to the sides of the forms. A. Yes, and on the arch section.

Q. That was necessary, was it not, to get the proper forms for your concrete? You had an inch or two of what was like spattered plaster?

A. I think it was proper and there was no argument at all. It was just one of the delays.

Q. It was one of the delays? A. Yes.

Q. It was one of the delays that resulted from the method which was adopted there to do that concreting?

A. One of the delays that resulted from having to pour first one wall and then the other instead of pouring one wall at a time.

Q. One of the delays that resulted from your having to comply with the specifications in pouring concrete?

A. I would not like to say to comply with the specifications, because I don't know of anything in

(Testimony of Lewis Michael Larson.)

the specifications that precluded the pouring of one wall first and then the other wall.

Q. Although it was required by the District Engineer, and it was required that it be poured in layers not exceeding one foot if it was not a continuous pouring operation?

A. Yes, and between periods that it must be vibrated, in order to be compact, which I am not quarreling with, because it was a proper provision.

Q. It was a proper provision, and it was required for all of the concrete placed in the concrete lining? A. It was.

Q. And it resulted in a homogeneous, uniform concrete which was free from voids, as far as possible, in practical working operation?

A. That was the intent, and I believe that was accomplished, or very nearly so.

Q. Would you say that the concrete which you placed in these two sections of the southwest portals of the tunnel was placed without [908] voids?

A. I believe later developments showed that in the arch there were voids.

Q. It was necessary afterward to cut out considerable portions of that concrete, was it not?

A. So I have been advised.

Q. Wasn't that while you were there?

A. No, I was not there at the time. I poured the concrete, but the repair of it was done after I left.

Q. Didn't you see the concrete after it was placed and the forms taken out?

(Testimony of Lewis Michael Larson.)

A. Yes, I did.

Q. You saw that there were large parts of that concrete that were placed in these tunnels by the Hackley gun which had porous spots and pits in it?

A. I would not say that, because I believe that is an exaggeration of a condition. This bad concrete or these pits that you speak about I believe were not visible, and were detected later on by drilling in from the top, that is my understanding, but I think the finish against the concrete form did not show any amount of defective concrete. There were vertical cracks, but that was not the result of pockets.

Q. Part of this tunnel lining was poured in the open, I think you said it was in buggies, the very first few feet on the job? A. In the south tunnel.

Q. And no part of the north tunnel?

A. No. The north tunnel was all shot, even the portal, with the Hackley gun.

Q. But it was in the open?

A. Part of it was in the open.

Q. I will show you a photograph of the left side of the west end of the south tunnel, taken on November 20, 1934. That was shortly after it was poured and before you had started driving again while the forms were taken out?

A. That is an open section, poured by buggies.

Q. That was poured by buggies? A. Yes. [909]

Q. And you had men working there at that time?

(Testimony of Lewis Michael Larson.)

A. Let me refresh my memory on that point. Mr. Price and Mr. Stephen Bechtel kindly gave me the right to run down and visit my family, who were living in Los Angeles at the time, and I know little of this.

Q. Do you remember seeing this open section of the concrete that you poured?

A. I don't recall that. There might have been some there, but if so I do not recall it now.

The Court: Where would this be, about?

A. That would be near the portal.

Mr. Tinning: That would be right behind the portal building.

The Court: Q. You poured that in buggies?

A. In concrete buggies.

Q. Is that in the arch? A. Yes.

Mr. Tinning: Q. That was out in the open. Here is the face of the hill, and the building was right here, 30 feet out in the open.

Mr. Tinning: We will offer this photograph in evidence as Defendant's Exhibit in the proper order.

The Court: It may be admitted and marked.

(The photograph was marked "Defendant's Exhibit L.")

[Set forth in the Book of Exhibits at Page 361.]

Mr. Tinning: Mr. Wittschen suggests that when we took our recess no order was made admitting it. May such an order be made?

The Court: Yes.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Q. I show you a photograph of the north side of the south tunnel, showing the concrete after the forms were removed, on November 20, 1934. Is that a fair representation of the condition of the concrete as it was disclosed on that portion of the tunnel that was poured in the open?

[910]

A. That was during my absence, too, but I know one thing, that it is better concrete than the buggy concrete.

Q. Better than the buggy?

A. It has that appearance.

Q. It shows those voids and rough spots?

A. It has rock pockets.

Q. It shows that there had been a segregation and at least at these points that the vibration did not result in homogeneous concrete mixing?

A. Yes, possibly due to the reinforcing preventing it, or lack of necessary amount of vibration.

Q. Maybe the men just missed that?

A. Yes, that is possible.

Q. But that was the result? A. Yes.

Q. That was placed by the Hackley gun?

A. That was placed by the Hackley gun.

Mr. Tinning: We offer this photograph in evidence, your Honor, as Defendant's Exhibit M.

The Court: Admitted.

(The photograph was marked "Defendant's Exhibit M.")

[Set forth in the Book of Exhibits at Page 362.]

(Testimony of Lewis Michael Larson.)

Mr. Tinning: Q. Did you see the concrete on the inside of the tunnel after the forms were stripped?

A. You are referring now to the 92 feet and 110 feet?

Q. Yes, we are dealing with that.

A. Yes, I stripped both of them so I naturally would see it.

Q. Were there any voids or rough spots in that concrete?

A. I have not any definite recollection of it, but it is not unusual in concrete; it would be rather surprising if it did not have some.

Q. Now, at the time you were doing this concrete work at the face, these two ring sections, how was the dirt moved from the tunnel to wherever it was finally deposited?

A. You are now again referring to the removal of the dirt in the 92 feet?

Q. We are confining our attention to that solely at this time. [911]

A. I think the majority, as I recall it, Mr. Tinning, most of the drift muck was carried from cars to cars and deposited directly into the fill. I won't say the most of it, but I think a good portion of it, and at a later period I think dumped into bunkers and hauled by trucks into the fill, but just the stage of the progress I have forgotten.

Q. Isn't it a fact that when you started your excavation there about August 23rd that you had

(Testimony of Lewis Michael Larson.)

a railroad system for the disposition of your earth that ran down along the District or the projected right of way some 2500 or 3000 feet, with a couple of trestles in it?

A. With Diesel locomotives, yes.

Q. That were used and designed to be used outside of the tunnel? A. Yes.

Q. And that at the beginning of your excavation the earth was placed in the muck cars and taken down this railroad track to the dump some 2,500 or 3,000 feet down the hill, down the valley, along the line?

A. That is substantially correct.

Q. You had a lot of trouble with that railroad, didn't you?

A. We had trouble with the Diesel engine, the equipment was faulty.

Q. They ran away going down the hill?

A. The brakes broke.

Q. And the cars would pile up? A. Yes.

Q. And your locomotives went off the track and your cars went off the track? A. Yes.

Q. And so you were delayed in getting the muck out of the tunnel at certain times, weren't you?

A. That may be true, but I am not sure that caused us any delay inside of the tunnel. I know it caused delay on the outside, but we had a reserve of cars, and it is my thought at the present time, without refreshing my memory on it, that it might have caused little or no delay inside.

(Testimony of Lewis Michael Larson.)

Q. Isn't it a fact that on several occasions the whole thing went [912] off the track, cars and engine, and you were tied up for six or seven hours while the locomotive was being placed back on the track?

A. I believe the time was greatly exaggerated, but I will admit that the out-haul locomotives and cars were derailed on either two or three or maybe four occasions, but we had another locomotive that was spotting cars in the tunnel, and that is why I feel reasonably sure that there might have been no delay to the tunnel work.

Q. Your testimony is now then that there was no substantial delay in the tunnel driving operation, in those two initial operations, by reason of the failure of the railroad equipment?

A. That is my recollection, Mr. Tinning.

Q. You said that when you were driving these tunnels that you had expected to place the concrete, to keep the concrete lining within 300 or 350 feet of the excavated face.

A. That was my thought in making the estimate, yes.

Q. When you left the job on April 30 you were in some 500 feet, weren't you? A. Yes.

Q. And the south tunnel was in approximately 100 feet further? A. 610, I think.

Q. And there had been placed in November, the latter part of November, concrete 92 feet at the

(Testimony of Lewis Michael Larson.)

mouth of the tunnel, the south tunnel, and 110 feet at the mouth of the north tunnel, so that there was approximately 400 feet of excavated and timbered and unlined tunnel in the north bore which you were in charge of, and approximately 500 feet in the south bore timbered and unlined tunnel?

A. I believe that is substantially correct.

Q. At that time there was no concrete steel form in either tunnel, was there?

A. No, not in the tunnel.

Q. They were not on the job, were they?

A. I believe not.

Q. You never saw them on the job before you left on April 30? [913]

A. My recollection is that I did not.

Q. And they were big enough when you did see them so that you would have known if they had been there? They were not concealed behind a pine tree or building somewhere?

A. That is true.

Q. They were not there, were they?

A. I believe they were not there.

Q. And when you returned to the job on August 29th there was approximately 1,000 feet of excavated tunnel in each of the bores, was there not—I am not talking about where it fell in.

A. Well, you may be approximately correct; I have the data on that but I have not in my mind.

Q. I do not think it is important to get the exact

(Testimony of Lewis Michael Larson.)

footage, but the statement that I made is a fair statement of the general condition, there was approximately 1,000 feet of each tunnel that had been excavated when you returned at the end of August?

A. I should say approximately.

Q. And did you observe how much concrete lining had been placed in the tunnel, or in either bore or both bores from the time that you left on April 30th and the time that you returned on August 29th?

A. I said in my previous evidence that I believed 80 feet in the north tunnel and between 200 and 300 feet in the south tunnel, and later I observed that there was some 70 feet in the north tunnel instead of 80 feet, and somewhere in the vicinity of a little bit under 200 feet additional in the south tunnel.

Q. So if the District records show that there was 160 feet of additional concrete in the tunnels at that time in addition to the original amount that you poured in October of the preceding year you would feel that those records would be wrong?

A. I would be inclined to think—are you taking the amount in both tunnels, or one?

Q. 160 feet in addition to what had been poured before, which [914] was distributed in the two tunnels.

A. I would be inclined to think that is under the amount. I am inclined to think from the company's records showing the date when the concrete was poured it shows more than that.

(Testimony of Lewis Michael Larson.)

Q. When was that first concrete poured in the steel forms in the tunnel?

A. That I could not recall now. I would have to go to my records for that.

Q. It was right around August 1, 1935?

A. I think some was poured—wasn't there some poured in June—it seems to me it was.

Q. Of course, you are testifying to something that you have been reading from in your preparations? A. Surely.

Q. I do not want to bind you on that, but your impression now is that concrete was poured in the tunnels in June?

A. It seems in the south tunnel it began in June. That is my recollection of the record.

Q. Isn't it a fact that the Six Companies did not have a concrete plant at the west portal set up for operation until the latter part of June, 1935?

Mr. Marrin: Why ask this witness all of these questions? He testified he was not there at that time. I think it is objectionable as calling simply for hearsay. He does not know about it.

Mr. Smith: He said he left there on April 30 and did not go back until August 29.

Mr. Marrin: I think these facts can be brought out clearly from other witnesses.

The Court: He has stated that he prepared himself as a witness by consulting the records, and he has testified to facts. He has testified in both capacities, and I think both sides recognize that, and

(Testimony of Lewis Michael Larson.)

probably counsel has that in mind, I do not know.

[915]

Mr. Marrin: I have no particular objection, your Honor, except that if Mr. Tinning is asking for facts—

The Court: Do you or do you not know any of these matters, "Yes" or "No"?

A. I don't know definitely.

Mr. Tinning: Q. But it is a fact that when you returned there that there had been a very small amount of concrete, and according to your statement around 300 feet poured in addition to what was poured in November of 1934 at the face?

A. I would say a little under 300, Mr. Tinning.

Q. A little under 300? A. Yes.

Q. That would mean that there were several hundred feet of full excavated tunnel with the timbers in it standing exposed to the air, and which could result in slaking and exfoliation for a period of seven or eight months?

A. You are speaking now, of course, of the time of the first exposure of the ground?

Q. Yes.

A. Yes, the period of time from the time the ground was uncovered up to the time of August that you speak of, will be approximately what you said.

Q. And during that period the materials in the tunnel were open to whatever effect air and moisture in the air could bring to them?

(Testimony of Lewis Michael Larson.)

A. Under the conditions that existed?

Q. Under the conditions that existed.

A. Yes.

Q. And the distance from the excavated face to the concrete was far in excess of 300 to 350 feet, was it not? A. That is true.

Q. And it was 700 or 800 feet?

A. You are probably correct, or approximately correct.

Q. Approximately correct? A. Yes.

Q. Do you consider as a tunnel expert that it was good practice to leave the tunnel standing timbered and unconcreted the period of time that you have just stated it remained in that condition?

[916]

A. If the conditions of placing concrete were under control, I would say it would be advisable to have followed closer with the concrete.

Q. Will you please read the question asked, Mr. Reporter, and will you please answer it "Yes" or "No", Mr. Larson, and then explain?

A. No, I do not, if the conditions, all the conditions are under control.

Q. Well, what conditions would you say prevented the placing of concrete in this tunnel? Was it the fact that there was no concrete plant ready until the end of June, 1935, or that there were no steel forms on the ground until the middle of June, 1935?

(Testimony of Lewis Michael Larson.)

A. No, I do not have that so much in mind, Mr. Tinning as I do that the unsatisfactory method—I say unsatisfactory, because I believe that was mutual between the Six Companies and the District—that a different manner of placing concrete would be desirable, and I am testifying now from the benefit of that information, that there was an effort to introduce a Pumpcrete method, and that was largely in its infancy, and I really believe it was developed to its present stage of efficiency in this very particular tunnel, but it required a good deal of preparatory work in the way of correspondence and discussions between the District Engineer and the Six Companies to effect that.

Q. You are now testifying to your conclusions from correspondence and records that you read?

A. Yes, from information that has come to me since.

Q. However, you knew at the time you prepared your estimate that the Pumpcrete method had been or was being used at the Boulder Tunnel?

A. Unsatisfactorily.

Q. Unsatisfactorily?

A. Yes, in filling the arch.

Q. Was there any condition that prevented the placing of concrete? [917] You had Hackley guns?

A. I do not know, Mr. Tinning. Of course, if we tied ourselves to 350 feet then I would have to admit that the forms were not ready at the time that we had reached the 350 feet, but I will also

(Testimony of Lewis Michael Larson.)

be fair to both parties and say that the form erection was also delayed, and, as I understand it, by the effort to get Pumperete equipment on the job. What other conditions controlled I am really not in a position to say.

Q. It is all again a conclusion from your consultation of records? A. That is correct.

Q. It was the contractor's duty to get the concrete in, was it not? The method that he used was, so long as he fulfilled the specifications, was his problem?

A. It was his problem to get the concrete in, that is true, by a method that would be satisfactory to the owners.

Q. That is, that would comply with the specifications?

A. That would comply with the specifications.

Q. In other tunnels you had used the Hackley gun and had been able to comply with the specifications and get a good job?

A. That is true, but we were not tied down, in fairness, we were not tied down to the same specifications that we were in this particular instance; in all previous jobs, in the Hollywood Tunnel, for example, we were permitted to pour one wall and then finish up pouring the arch, and in the Claremont Tunnel to pour from the center and allow it to flow down the side.

Q. The Claremont Tunnel was not comparable

(Testimony of Lewis Michael Larson.)

—it was a water tunnel, and it was about the same size as one of these drifts?

A. It was not comparable in size, no, Mr. Tinning.

Q. The Hollywood Tunnel was comparable in size, was it?

A. Except for height.

Q. And the height was what caused you your trouble with the Hackley [918] gun, was it not?

A. No, I would not say that, that would not be a fair conclusion; it was not the height alone that gave us the trouble. We would have had the same trouble if we had taken one of these contracts and been compelled to deflect the concrete in the manner prescribed by the specifications. I am not going to say that the method was wrong or that it was an unreasonable requirement. I am trying to answer your questions intelligently. I—

Q. (Interrupting) It was a requirement—

Mr. Smith: Just a minute, let him finish.

Mr. Tinning: He stopped, and I thought he had finished. I am sorry. What were you going to say?

A. I have forgotten my drift. Go ahead with the next question.

The Court: We will take an adjournment now until tomorrow morning at ten o'clock.

(An adjournment was here taken until tomorrow, Friday, April 22, 1938, at ten o'clock a. m.)

[919]

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Sup Ct,

Vol. IV

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

SIX COMPANIES OF CALIFORNIA, HARTFORD ACCIDENT AND INDEMNITY COMPANY, ET AL., PETITIONERS,

vs.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR CERTIORARI FILED JULY 22, 1940.

CERTIORARI GRANTED OCTOBER 14, 1940.

NO. 9113

United States

Circuit Court of Appeals

For the Ninth Circuit.

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

Transcript of Record

In Eight Volumes

VOLUME IV

Pages 983 to 1470

Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

PARKER PRINTING COMPANY, 543 SANSOME STREET, SAN FRANCISCO

Friday, April 22, 1938;
10:00 o'clock a. m.

LEWIS MICHAEL LARSON,

Cross-Examination (continued).

Mr. Tinning: Q. Mr. Larson, yesterday, when we were discussing the placing of concrete in the forms, you understood me to mean in horizontal layers, did you not? A. Yes.

Q. I used the word "vertical"; and, in running through the testimony, this morning—

A. Yes; I thought I knew what you intended.

Q. I did not know I said that. I meant—

A. Horizontal layers.

Q. Yes. And your answers, in other words, showed you understood it so? A. Yes.

Q. You stated that you proposed, in the excavation, in the placing of timbers in the tunnels, to place, or to leave, the timbers in the Monterey sandstone and the opening, or portal section, of the tunnels, and to remove the timbers in the cherts and the Orindan—That was your testimony?

A. Yes.

Q. And we understood it, with respect to Plaintiff's Exhibit No. 27, Section "AA" and Section "BB," that way? A. Yes.

Q. I would like to show you revised schedule submitted by Six Companies of California to the District, with a letter dated August 9, 1934. This revised schedule was submitted, if I recollect your testimony, before you had gone underground, except with possibly the two center drifts that we

(Testimony of Lewis Michael Larson.)

were looking at in the photograph yesterday? If you will look to the left, "Company Work Tunnel Proper," you will find an excavation schedule which shows that you, at that time, intended, or had planned, at the time this was made up, even though it was presented on August 9th, to commence excavating in the west [920] portal of the tunnels, on July 20, 1934, and finish that work by September 5th; and the figure that was contemplated, under your proposal that you have outlined, was 40 feet in each of those portals. Will you please examine the number of yards that appear as the contemplated quantity of that total of 80 feet in the two tunnels,—3,145 cubic yards? It is a fact, is it not, Mr. Larson, that there were, in the neat sections—there were 35.6 cubic yards of material?

A. I believe that is correct.

Q. And it is a fact, is it not, that the figure of 3,145 cubic yards in the west portal section of 80 lineal feet is just 10 per cent more than 35.6 yards per foot?

A. I would have to reduce that to—

Q. Well, I have; but, if you would like to do it and check me, it would probably be advisable. Would you like a piece of paper?

A. Yes. That shows in excess over the neat.

Q. In other words, 10 per cent in excess of the neat or net quantity of excavation. It is likewise true, is it not, that the Monterey Sandstone shows the same thing? A. It appears so.

(Testimony of Lewis Michael Larson.)

Q. And likewise true that the Claremont cherts shows the same thing? A. So it appears, yes.

Q. It is likewise true the Orindan shown the same thing?

A. That is true, it appears so.

Q. So that the estimated quantity of excavation was exactly the same in the section of the tunnel in which you planned to leave the timbers as it was in those in which you planned to remove them?

A. That is true.

Q. And your schedule, at that time, submitted on August 9, 1934, shows that you planned to commence placing concrete on the 15th day of August, 1934, and to complete doing so on the 31st day of July, 1935—You will look at the black line there—

[921]

The Court: I am afraid you will have to assist me with this schedule.

Mr. Tinning: Well, your Honor, I will have to—need assistance, myself, because I read the wrong line; it is a combination of bifocal glasses and cross section paper.

Q. If you will look, Mr. Larson, at the heading "Concrete Walls and Arch," and then follow, off to the right, along the black line, you will find—Maybe you can do much better?

A. Your Honor, the line I was trying to show is here.

Mr. Tinning: It was misstated in my question.

(Testimony of Lewis Michael Larson.)

Q. The line opposite "Walls and Arch,"—that is the concrete lining, is it not, Mr. Larson?

A. Yes.

Q. I, instead of starting at the date that I stated in my former question—it is shown on this revised schedule, on August 9th—it commenced September 5, 1934, and planned to finish September 10, 1935.

The Court: Oh, I see.

Mr. Tinning: The dates are above that. Here is September. This line comes to the 10th; each one of those is a five-day period.

The Court: Yes, I understand.

Mr. Tinning: Here is the 5th day of September, and the 6th day of September.

The Court: I see.

Mr. Tinning: Q. After your assistance, my statement of what that schedule shows, with respect to the proposed time, is correct, is it not, Mr. Larson? A. Yes.

Mr. Tinning: If the Court please, we will offer the letter and schedule of August 9, 1934, submitted by Six Companies of California to the District named, as defendant's exhibit in proper order.

[922]

(The document was marked "Defendant's Exhibit N.")

[Set forth in the Book of Exhibits at page 363.]

Mr. Tinning: Q. I will show you revised schedule of proposed construction submitted to Joint Highway District by Six Companies of California

(Testimony of Lewis Michael Larson.)

on February 12, 1935, Mr. Larson. I will ask you if you will observe the figures on the left, under "Company Work Tunnel Proper Excavation." Those figures are the same as on the schedule of August 9, 1934, are they not?

A. I believe they are.

Q. And, to save time, they also include exactly the same 10 per cent beyond the neat excavation line; they are the same, Mr. Larson, are they not?

A. Yes, I think they are.

Q. And show that, in the schedule submitted on February 12, 1935, the amount of excavation contemplated, in the west portal section, Monterey sandstone, Claremont cherts and Orindan, was all the same?

A. Was that a statement or a question?

Q. I am saying that the amount per lineal foot was estimated to be the same.

A. It was estimated to be the same.

Q. Yes. A. Yes.

Q. One other question in connection with that schedule, Mr. Larson: If you will look off to the right this time from the heading "Walls and Arch," you will see that that work was scheduled to start May 1, 1935?

A. You are thinking now, Mr. Tinning, I suppose, of the continuation with the lining?

Q. Yes. There is shown, on the schedule, between November 15th and December 15th, a short line covering a period of one month, which covers

(Testimony of Lewis Michael Larson.)

the installation of the concrete in the first 110 feet in the north side, and 92 feet in the south portion?

A. Yes.

Q. Then the line is broken, and shows the resumption, or the planned resumption, of the concrete placing in the tunnel lining on the first day of May, 1935, and shows the contemplated finishing of the [923] lining on April 15, 1936?

A. April 10th, isn't it, Mr. Tinning, rather than the 15th—if that is material?

Q. It is material; but my bifocals are not very good. Each one of these squares is 5 days. As a matter of fact, you left the work on the day before this schedule shows it was intended to resume the concreting? A. I left on April 30th.

Q. And the schedule shows that it was intended to commence concreting on May 1st; and, when you left, there were no steel forms on the job for the concreting? That is correct, isn't it?

A. That is correct.

Mr. Tinning: We will offer this schedule of February 12, 1935, together with a letter dated February 12, 1935, from Six Companies of California to the District, as defendant's exhibit in proper order.

(The documents were marked "Defendant's Exhibit O.")

[Set forth in the Book of Exhibits at page 367.]

Mr. Tinning: Q. Mr. Larson, when you were testifying here some days ago with reference to the

(Testimony of Lewis Michael Larson.)

specifications and your understanding of them, you read a portion of Paragraph "B" in Section 32, from page 59 of the Specifications.

Mr. Trefethen: May I have that note again? Paragraph what?

Mr. Tinning: Portion of Paragraph "B", Section 32, page 59.

Q. You read a sentence that commences—It is in the right-hand column—You said this sentence was one of the things that caused you to conclude, because it required, or provided for, the removal of timbers—caused you to conclude that it was contemplated that the material throughout the tunnel would be in self-supporting ground. The sentence you read, or the portion that you read, as I have it marked—and I think it is complete—says:

> "Where timber is employed for tunnel timbering it shall be removed before any concrete is placed, and any spaces outside the neat lines of the concrete structure caused by such removal shall be filled [924] with concrete as above provided. In the event that it is found impracticable, in the opinion of the District Engineer, to remove timbering or portions thereof, such timbering may be allowed to remain permanently in place, but in no case shall such timber so remaining be allowed to project into the neat lines of the concrete structure. Where timber is permitted to remain, all spaces outside of the neat lines of the concrete

(Testimony of Lewis Michael Larson.)

structure shall be filled with concrete mixed in the same proportions and placed at the same time as the concrete in the neat structure. If structural steel shapes are used for tunnel sets they may be allowed to remain permanently in place provided that they do not project into the concrete more than four inches (4") beyond said neat lines of the concrete structure."

When you worked on some of the estimates that you prepared for other tunnel jobs, do you recollect that you found similar provisions in the specifications?

A. Are you referring now to the Broadway Tunnel?

Q. No. I said for other estimates on other jobs. You know, we have been at this a long time, and we are talking about some other tunnels here at other stages in this proceeding? A. Yes.

Q. For instance, you said you prepared an estimate on the Sunset Tunnel? A. Yes.

Q. You prepared them on several other tunnels?

A. Yes.

Q. Isn't it true that what I have read here is stated in all specifications for tunnels in substantially the same language?

A. I am not prepared to answer "Yes" to that, Mr. Tinning. I would have to trust entirely to my memory. My memory might be at fault.

Q. Do you remember this provision in the specifications for the Sunset Tunnel—and I am reading

(Testimony of Lewis Michael Larson.)

from page 25, gentlemen, of the specifications for the construction of a tunnel known as Buena [925] Vista Tunnel, San Francisco Specifications No. 14646. The sections are not numbered in this set; the best I can do is give you the page:

"All sheet piling, lagging, bracing, shoring or timbers shall wherever practical be removed from the excavation except where the City Engineer shall expressly order the same to be left in place. All vacancies left by the removal of sheet piling, lagging, bracing, shoring or timbers shall be backfilled as herein specified. The contractor shall be responsible for any injury which may result to the work or any other structure by the removal of lagging and bracing."

Do you remember that provision?

A. I would not; that is too long since.

Q. When you prepared the estimate, were you led to believe, by reading the provisions of the specifications, that you could expect to find self-supporting ground as you drove through the Sunset Tunnel? A. I cannot recall——

Q. Would you answer "Yes" or "No"—Were you led to believe——

A. I cannot remember.

Mr. Smith: He says he cannot remember. That is an answer, Mr. Tinning.

Mr. Tinning: Q. You cannot remember?

A. I cannot remember; that is too long since, and I don't remember, right now, whether there

(Testimony of Lewis Michael Larson.)

was a geological report to help bring out that thought.

Q. All the timbering was left in, in the Sunset Tunnel, was it not? A. I don't remember.

Q. Isn't it a fact that you stated, earlier in your testimony, that where the timber was taken out, where such a provision appeared in the specification, that you believed then that the ground must be self-supporting?

A. I referred to the Broadway Tunnel, [926] coupled with the geological report, in making that statement.

Q. In other words, it is the geological report that you need to draw your conclusion, not the specifications? A. Both.

Q. Both? A. Both.

Q. Why, if you need both, would you say, if there was no provision for a geological report on the Sunset Tunnel, that this provision did not mislead you?

A. I cannot remember my conclusion on the Sunset Tunnel; and I am really not prepared to make any definite statement as to what my thoughts were on it.

Mr. Tinning: Gentlemen, we would like to offer this section that I have just read in my question.

Mr. Smith: Offer the whole thing.

Mr. Tinning: Well, we would be glad to do that, but the only thing is I cannot provide you with a copy. This is the only copy we have. I would like

(Testimony of Lewis Michael Larson.)

to offer that in the record. I will have this whole thing photostated.

Mr. Smith: We are interested in the whole thing.

Mr. Wittschen: The witness testified that he figured the Sunset Tunnel, and he also testified, in his earlier statements, that, wherever the timber was to be removed, he assumed the ground was self-supporting; and he also testified, previously, he has forgotten it today, that the Sunset Tunnel—it was not self-supporting,—a great portion of it. All we want to put in is the pertinent portion of the Sunset Specifications. Why put in reams that don't apply to this part of the case or the witness' testimony?

Mr. Marrin: There may be other provisions of the specifications bearing on that.

Mr. Wittschen: We will permit you to examine them, and you can offer any part you want. We are not objecting. [927]

Mr. Tinning: We have no objection to that, your Honor; but it happens this is an old document; this is the one copy that we have, but I will be glad to have it go in so the record here will be complete; and I will propose, by next Tuesday morning, to have photostatic copies of the—

Mr. Wittschen: That is quite a job. You can leave them that book and let them put in what portions they wish.

The Court: Let them examine it. You can make

(Testimony of Lewis Michael Larson.)

some arrangement between you to let them examine it; and if there is anything that has any relation to the subject matter, they will have an opportunity to offer it.

Mr. Tinning: I offer in evidence the portion of the Sunset Tunnel Specifications No. 14646, of the Department of Public Works of the City and County of San Francisco, appearing on page 25—

Mr. Marrin: Is it dated on the outside, Mr. Tinning?

Mr. Tinning: September, 1922—appearing on page 25; which I have read, and which I will now read again:

> "All sheet piling, lagging, bracing, shoring or timbers shall wherever practical be removed from the excavation except where the City Engineer shall expressly order the same to be left in place. All vacancies left by the removal of sheet piling, lagging, bracing, shoring of timbers shall be backfilled as herein specified. The contractor shall be responsible for any injury which may result to the work or any other structure by the removal of lagging and bracing."

If it may be introduced in this manner, it is satisfactory.

The Court: Yes; it is in the record

Mr. Tinning: I understand there will be no number given to this because it is in the record.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Will you let us have it over the weekend, Mr. Tinning?

Mr. Tinning: Yes. [928]

Q. When you were preparing your estimate for a bid on the Claremont Tunnel did you have in mind a provision in the specifications which appeared as Sections 65, 66 and 67, specification for the Mokelumne River Project, Claremont Tunnel of the East Bay Municipal Utility District?

Mr. Smith: What is the date of that?

Mr. Tinning: Apparently there is no date. April 2, 1926 is the date that appears on the advertisement calling for bids:

> "The tunnel shall in all cases, be excavated in such a manner and to such dimensions as will give suitable room for the necessary timbering, lining, ventilating, pumping and draining. The contractor shall use every reasonable precaution to avoid excavating beyond the outside lines of permanent timbering and beyond the outside neat concrete lining where timber is required. All drilling and blasting shall be carefully and skillfully done so as not to shatter the material outside the required lines. The contractor shall avoid blasting that might injure the work, or adjacent property, and any damage done by blasting shall be repaired by the contractor at his expense, and in a manner satisfactory to the engineer. Wherever the

(Testimony of Lewis Michael Larson.)

grade of the tunnel at the west portal is within 200 feet of the ground surface, the excavation shall be so performed as to disturb the residents as little as feasible. Blasting shall be done between the hours of 8 A. M. and 8 P. M. with light charges, subject to approval of the engineer. The tunnel will be paid for by the Linear foot at the price bid therefor under item 1, which shall include excavation, temporary and permanent timbering, backfilling and all work incidental to a completed tunnel, except that cement, reinforcing steel and concrete, exclusive of cement and reinforcing steel, will be paid for under the provisions of paragraphs 52, 53, and 63 respectively." [929]

It thus appears in this specification that I just read, Mr. Larson, that timbering was not something that was not to be paid for extra, as I believe you stated it was.

A. That is my recollection.

Q. This refreshes your mind that the price per foot was just as it was in the Broadway Tunnel, a lump sum? A. Yes.

Q. "66. Timbering. Suitable timbering and lagging shall be used to support the tunnel sides and roof whenever necessary. If practicable, this timbering shall be removed before the construction of the concrete lining. Timbering left in place must be placed in such a

(Testimony of Lewis Michael Larson.)

manner as not to weaken the concrete lining and must be in accordance with designs approved by the engineer. Approved designs for such permanent timbering are shown on the drawings, but in case the designs are found to be inadequate, they may be modified from time to time, subject to the approval of the engineer. Lumber for timbering shall be furnished and placed by the contractor at his own expense. The cost of furnishing and placing timbering shall be included in the price bid per linear foot for excavating the tunnel. Nothing herein contained shall prevent the contractor from placing such temporary timbering as he may deem necessary for safety, or from using heavier timbering than that shown on the drawings, or shall be construed to relieve the contractor from sole and full responsibility for the safety of the tunnel and from damage to person and property."

Now, was there anything in those provisions of the specifications which I have just read to you, Sections 65 and 66, that caused you to believe that the material in the Claremont Tunnel would be self-supporting?

A. No, I must say this, Mr. Tinning, that there is no definite statement there in the specification that material would be self-supporting; there is an indication [930] that we may run into some of it

(Testimony of Lewis Michael Larson.)

that would be self-supporting but the provision that you have read departed in one particular from the Broadway Tunnel, in which, when the timber should be left in place it must meet the approval of the District, and that they would furnish plans for such timber rather than the specification—

Q. They would furnish the design?

A. The design, yes.

Q. And I believe they did, and you furnished a substitute design which they consented to?

A. That is true.

Q. And the specification provided that it might be put on the approved design? A. Yes.

Q. Isn't it a fact that in the Broadway Tunnel that the timbers could remain in with the approval of the District Engineer?

A. Yes, it had to have his approval.

Q. Isn't it a fact, Mr. Larson, that there is nowhere in this Broadway Tunnel specification that it says that the ground is self-sustaining? In your previous answer you said that there was nowhere in the Claremont Tunnel specification that it stated that; it is also true about these Broadway specifications?

A. I wish to say it this way, there is not in the Broadway specifications, as I remember, any direct statement that the ground will be self-supporting.

Q. I wanted to clear that up, because your previous answer indicated that might be your basis.

(Testimony of Lewis Michael Larson.)

All of the direct statements that you referred to as having caused you to believe that this ground would not require timbering in the majority of the material encountered come from the geological report, do they not?

A. Yes, directly and indirectly. It appears to me that was the conclusion of all the parties.

Q. Mr. Larson, I wish you would answer my question before you start explaining.

A. I thought I had. [931]

Q. I am talking about the geological report, and I ask you if it is not a fact that the only place that anything appears where there is a direct statement with respect to the material to be encountered is in the geological report?

A. Yes, the geological report is the only place where it states the ground will be self-supporting, but what I am trying to bring out is undoubtedly that same interpretation was put on it by all parties in order to bring out that specification, and it is because of that statement in the specifications that I was influenced to believe that everybody viewed it in the same light. That is why I tie the specification and the geological report together.

Q. You are now stating a conclusion, your conclusion, and we ask, if your Honor please, that the witness' answer go out because I asked him with respect to where there was a definite statement.

The Court: It may go out.

(Testimony of Lewis Michael Larson.)

Mr. Tinning: If your Honor please, we offer in evidence Sections 65 and 66 on behalf of the defendant from the specifications of the Mokelumne River Project, California, Claremont Tunnel, East Bay Municipal Utility District, upon which bids were opened May 14, 1926 in Oakland. I would like to read the sections into the record. May it be stipulated that the reporter can copy Sections 65 and 66?

Mr. Marrin: Yes.

(The Sections referred to are as follows):

"Section 65. Excavation. The tunnel shall in all cases, be excavated in such a manner and to such dimensions as will give suitable room for the necessary timbering, lining, ventilating, pumping and draining. The contractor shall use every reasonable precaution to avoid excavating beyond the outside lines of permanent timbering and beyond the outside neat concrete lining where timber is required. All drilling and blasting shall be [932] carefully and skillfully done so as not to shatter the material outside the required lines. The contractor shall avoid blasting that might injure the work, or adjacent property, and any damage done by blasting shall be repaired by the contractor at his expense, and in a manner satisfactory to the engineer. Wherever the grade of the tunnel at the west portal is within 200 feet of the

(Testimony of Lewis Michael Larson.)

ground surface, the excavation shall be so performed as to disturb the residents as little as feasible. Blasting shall be done between the hours of 8 A. M. and 8 P. M. with light charges, subject to approval of the engineer. The tunnel will be paid for by the linear foot at the price bid therefor under item 1, which shall include excavation, temporary and permanent timbering, backfilling and all work incidental to a completed tunnel, except that cement, reinforcing steel and concrete, exclusive of cement and reinforcing steel, will be paid for under the provisions of paragraphs 52, 53, and 63 respectively."

"Section 66. Timbering. Suitable timbering and lagging shall be used to support the tunnel sides and roof whenever necessary. If practicable, this timbering shall be removed before the construction of the concrete lining. Timbering left in place must be placed in such a manner as not to weaken the concrete lining and must be in accordance with designs approved by the engineer. Approved designs for such permanent timbering are shown on the drawings, but in case the designs are found to be inadequate, they may be modified from time to time, subject to the approval of the engineer. Lumber for timbering shall be furnished and placed by the contractor at his own expense.

(Testimony of Lewis Michael Larson.)

The cost of furnishing and placing timbering shall be included in the price bid per linear foot for excavating the tunnel. Nothing herein contained shall prevent the contractor from placing such temporary timbering as he may deem necessary [933] for safety, or from using heavier timbering than that shown on the drawings, or shall be construed to relieve the contractor from sole and full responsibility for the safety of the tunnel and from damage to person and property."

Mr. Alexander: You mentioned 67.

Mr. Tinning: I did not read that, I did not think it was necessary.

Q. You prepared an estimate on the Figueroa Tunnel, too, did you not? A. I did.

Q. I will read to you now from page 39 of the Figueroa Street Tunnel specification. I do not have the date of this document. I have a photostatic copy.

A. Are you speaking, Mr. Tinning, of the last Figueroa street tunnel, because there was an earlier one.

Q. I am speaking of the three tunnels.

A. The three tunnels.

Q. Those, I think, are the ones you referred to as the ones on which you prepared an estimate. Do you remember that when you prepared the estimate you read this provision of the specification:

(Testimony of Lewis Michael Larson.)

"If wood is employed for tunnel timbering it shall be sound Douglas Fir and no second hand lumber shall be used. So far as is practicable all wooden members of the timbering shall be removed before the concrete is poured. Where found necessary in the Engineer's opinion, timbering, or portions thereof, may be allowed to remain permanently in place, but, in no case will any wooden piece so remaining, be allowed to project into the concrete in the direction of the center of the tunnel beyond the extrados line as shown on Sheets 2 and 3 of the drawings. If structural steel shapes are used for the ribs of the tunnel sets they may be allowed to remain permanently in place and may project not to exceed eight (8) inches into the concrete beyond said extrados line in the direction of the center [934] of the tunnel."

As I understand the extrados line is the exterior of the neat concrete lining?

A. That is correct.

Q. Did you, in preparing your estimate for this bid you worked on have in mind this provision that I have just read to you from the Figueroa street specification?

A. I must say yes, because while I do not remember now what I might have done at that particular time, I read the specification and must have had that in mind.

(Testimony of Lewis Michael Larson.)

Q. Did you believe from reading that provision of the specification that the material to be encountered in the Figueroa street Tunnel would be self-supporting?

A. I would hardly think so, but at the present time I could not just remember what my thoughts were at that time.

Q. When you read the specification of the Broadway Low Level Tunnel you said that they caused you to believe that the material which you were to pass was to be self-supporting in the majority of the tunnel.

A. They helped me to believe it, yes.

Q. And because it said that the wood timbering should be removed, if it could be, you assumed that there would be a large part of the tunnel which would not require support?

A. Not alone from the specification, Mr. Tinning.

Q. The specification was part of the thing upon which you based your judgment, was it not?

A. That, coupled with the geological report.

Q. This was one of the indirect things then in the specifications in distinction to the direct statement you claim in the geological report which led you to believe that the ground would be self-supporting throughout the larger part of the tunnel?

A. It helped strengthen my belief to that extent.

[935]

Q. Your belief was based on these specifications and upon the geological report?

(Testimony of Lewis Michael Larson.)

A. That is correct.

Q. And you knew in the Broadway Tunnel, and you knew in the Figueroa Tunnel, and in the Claremont Tunnel, and in the Sunset Tunnel, and in all tunnels of this type, that it was in the power of the engineer to have the timber removed if it was practical to do so?

A. In general I believe that is correct.

Q. And the practice in general was also followed in the Broadway specification, was it not?

A. Probably, yes.

Q. Mr. Larson, following your work in connection with the preparation of the estimate for the tunnels you went away and were mining for some time? A. Yes, after the 30th of April.

Q. You prepared a bid——

Mr. Smith: Just a minute now, I think the witness misunderstood the question. You say that following his preparation of the estimate he went away mining. He did not. A. No, I did not.

Mr. Tinning: I was trying to bring in the historical set-up. You were employed in and about the work until April 30, 1935, and then you came back in September, or the 29th of August, and remained there until about the 1st of December, and then you were away from the tunnel for some time following that date?

A. That is approximately correct.

Q. And you visited the tunnels again, as I understand it, sometime in August or September of 1936, after the Six Companies had quit?

(Testimony of Lewis Michael Larson.)

A. I did visit it after the Six Companies had quit.

Q. And at that time you have already testified you were preparing an estimate for a bid on the completion of the tunnel? A. That is a fact.

Q. Did you call upon Mr. Wallace B. Boggs, District Engineer of the District, on the 26th of August, 1936, to discuss the work [936] that remained to be done?

A. I remember calling upon him but I do not remember the date.

Q. The purpose of your call was to discuss the work, was it not?

A. That was the purpose of the call.

Q. And in the conversation that you had with him you told him that you were preparing a bid for some undisclosed contractor?

A. I believe I did not state who the contractor was——

Q. Even though at that time——

A. Pardon me, might I finish my answer—because I had to be clear in my answer—are you speaking now of the first call for bids after the Six Companies quit, or the second?

Q. I do not know whether you called on Mr. Boggs later, but the time I am referring to is the occasion when you called at his office at 1448 Webster street, the District Office, and saw him, and to refresh your memory further, do you remember that while you were with Mr. Boggs, shortly after you started to talk to him, that Mr. A. Kempkey,

(Testimony of Lewis Michael Larson.)

one of the District Consulting Engineers, came into the room?

A. I think that was on the second call for bids, as I recall it.

Q. According to the District records it was the 26th of August, 1936, and that was before the bids were received, and it was the time that examination was being made of the District work to be done, in the completion, by a number of contractors; that is the date of the conversation which I refer to, and it was on the afternoon of August 26, 1936, Mr. Larson.

A. In that event, I think I had no direct association with the contractor, at that stage of the game; that is my recollection now.

Q. And on that date you made a deposit and secured a set of plans and specifications?

A. I did make a deposit and secured a set of plans. I don't remember the date. [937]

Q. You said that you were preparing an estimate for a bid for some unknown contractor, or for some contractor, and you did not name him—I do not mean you used the term "unknown contractor."

A. I do not know whether I specified I was doing it for a contractor or in anticipation of having a contractor.

Q. In that conversation it is a fact, as you stated to Mr. Boggs, that you thought the Six Companies' greatest trouble on the job was too many bosses?

(Testimony of Lewis Michael Larson.)

A. I don't remember that conversation.

Q. You don't remember that statement?

A. I do not.

Q. You remember that a conversation occurred that day?

A. I remember that I had a conversation with Mr. Boggs then and subsequently, but I do not remember any such a conversation.

Q. And that apparently Board Meetings had to be had to settle on any matters of method and equipment to be used in the tunnel?

A. I believe that is a misstatement.

Q. You don't remember such a statement?

A. I don't remember any such remarks.

Q. And that those Board Meetings of Six Companies' people usually developed much difference of opinion as to methods and equipment to be used?

A. I would not know that.

Q. You did not make that statement?

A. I believe I did not make that statement; to the best of my recollection I did not make that statement.

Q. And did you at that time in that conversation with Mr. Boggs, state that the termination of your work with the Six Companies on April 30, 1936, was due to your own disapproval of the methods which you were then required to follow in doing the work in the tunnel?

A. I do not think so, because it would be an untrue statement.

(Testimony of Lewis Michael Larson.)

Q. You did not make that statement?

A. I do not believe I did.

Q. You believe you did not?

A. I believe I did not. [938]

Q. Did you further state in the presence of the people mentioned at the time stated that you never considered that you had been deceived as to ground conditions by representations made in the geological report or the specifications?

A. I am reasonably confident I made no such statement, because that has never been my thought.

Q. Did you then state that the caves-in were unnecessary and avoidable?

A. I believe I did not.

Q. Did you at that time and place state in discussing the preparation of your estimate made for a bid, for use by the Six Companies, that it had been reduced about $200,000 by Mr. Steve Bechtel?

A. I did not make the statement in that way. I know that the matter had been discussed at various times, but I did not state that the estimate was reduced. I may have admitted that there were differences of opinion as to the bid amount.

Q. Did you state at that time and place that the amount that you had estimated for the tunnel work, the estimate that you prepared in 1934 had been reduced $200,000 or thereabouts by Mr. Steve Bechtel, in making the bid?

A. I have no recollection that I made any such statement.

(Testimony of Lewis Michael Larson.)

Q. Did the bid reduce your estimate?

A. I have never made a page by page comparison at the present time, but I believe that the bid did not, that is, I believe that the estimate was not materially reduced. That is my present belief.

Q. Did you also in that conversation state in respect to the estimate that you had made that you had also made an estimate of the Fort Peck Tunnel for some of the Six Companies group?

A. I can't remember whether I made that statement or not.

Q. And much lower figures were received from other bidders so that you had the reputation with Mr. Steve Bechtel at least of [939] being a high estimator?

A. I believe not. I am not inclined to boast.

Q. You then state that you did not make such a statement? A. I am positive I did not.

Q. Did you state at that time and place that in the preparation of the estimates of the Six Companies in 1934 upon which this contract was let, that two other units of Six Companies prepared estimates for discussion amongst themselves, one being the Utah Construction Company and that those estimates were higher than the figure used for the actual bid?

A. I do not remember having made that statement, but it is a fact that the Utah Construction estimate was higher than my estimate.

(Testimony of Lewis Michael Larson.)

Q. And at that time when you were discussing this matter about the reduction by Mr. Bechtel, you state you do not recall that?

A. I do not remember that. I doubt very much whether I made any such statement.

Q. At the time that you had this discussion with Mr. Boggs and Mr. Kempkey did you then state in their presence that Mr. Bechtel had reduced your estimate of the cost of the tunnel work in the figures that he submitted in Six Companies' bid for doing the tunnel work?

A. I could not have made that statement, and do not believe I made the statement, because I did not know until the day before yesterday what the true facts were. I doubt that I made that statement.

Q. You doubt it? A. Yes.

Q. Did you at the time that the bid of the Six Companies was being prepared protest that your estimate was cut or reduced by the figure which was submitted as a bid on the tunnel job?

A. Not as you state it.

Q. What did you do?

A. 'I discussed with other members of the group [940] the amount that was offered as a bid price. It was my thought that the price should be raised.

Q. Did you state to Mr. Boggs and to Mr. Kempkey on August 26, 1936, that at the time that Mr. Bechtel told you he was going to reduce his bid figures for the tunnel work below the amount of

(Testimony of Lewis Michael Larson.)

your estimate—did you also state to them when you had protested and objected that Mr. Bechtel had said to you that you had done the job and that he, Mr. Bechtel, and the remaining members of the Six Companies group were going to make the bid?

A. I made no such statement, not as you are stating it.

Q. Did you at the time and place mentioned, August 26, 1936, state to the persons present that you and Mr. Fontaine were in close agreement, and that Mr. Bechtel tried to get Mr. Fontaine to take a financial interest in the job, but that he had refused and was thereafter replaced by Mr. Price?

A. I doubt that very much—pardon me, might I explain? I want to make this thing clear, that I did not know what Mr. Fontaine's position was with regard to the Bechtel people, and, furthermore, the implication there is, as I understand it, that Mr. Fontaine was relieved from the position because he would not become an interested member. That is far from the fact.

Q. I am asking you if you made that statement.

A. I did not make any such statement.

Q. Did you at that time state that the Bechtels were hot for their job and that it was generally talked among Six Companies' employees that the rest of the group had decided to give them a lesson in contracting?

A. I have no recollection of that remark.

(Testimony of Lewis Michael Larson.)

Q. Did you at that time and place state that the Shea Company apparently were little interested in the work at the time you left the job?

A. I have no recollection of making any such remark. [941]

Q. Now, as I understand your position with respect to this matter the geological report was ignored by you except as to the general conditions appearing at the end of the report.

A. That was the controlling factor.

Q. In other words, you took the general conditions and interpreted them as you have stated at length, and wholly ignored the other matters and details, discussions and predictions of material to be encountered that appeared in the earlier pages of the portion of the report that you had?

A. Yes, in so far as those general provisions gave a definition to the generalities that preceded it.

Q. When you were preparing your estimate in this matter you had in mind all of the provisions of paragraph (e) of Section 32 of these specifications for the Broadway Tunnel?

Mr. Smith: What page is that?

Mr. Tinning: Page 60——

Q. Is that correct, all of the provisions of the Timbering Section?

A. Unquestionably I had.

Q. You also had in mind, did you not, that payments for the work in the tunnel, Broadway Tunnel, would be on the same basis as it was in the Clare-

(Testimony of Lewis Michael Larson.)

mont Tunnel, except that the contractor here would be required to furnish all material, while in the Claremont Tunnel I believe the concrete was furnished by the owner. You remember that, do you not?

A. I do not remember the details of the Claremont, consequently I could not couple the two together, but I did understand that in the Broadway Tunnel that the timbering would have to be placed at the expense of the contractor.

Q. And that under paragraph 20 of Section 32, which appears upon page 63 of the specifications, it was provided that "The prices bid per lineal foot for tunnel construction of the various sec- [942] tions and of cross adits shall constitute full compensation for all excavation; the removing, transporting and depositing of materials, as herein provided, timbering, drilling, blasting, draining, ventilation, timber and removal, structural steel supports and removal, and all concrete work as shown in the plans, including all concrete placed outside the neat lines of the concrete structure, and all grouting"; by that term "grouting" is meant concrete between the timbers and the material that fills the overbreak which is not filled by timber or lagging—"for all materials furnished and the transporting and placing of all materials." I do not think it is necessary to read further, because that deals with other portions of the work. Now, you had that in mind when you were preparing your estimates?

(Testimony of Lewis Michael Larson.)

A. I did.

Q. As well as the provisions of the timbering section? A. I did.

Q. And those provisions of the timbering section provided that where the District Engineer authorized you to do so, or with his consent, that the timber could be permitted to remain permanently?

A. I do not quite couple that. I thought you were making a statement rather than asking a question. I ask that it be read over again.

Q. Perhaps I had better restate it, your suggestion is probably good. You had in mind as well as the fact that the contractor had to furnish all the material as provided by paragraph 20 of Section 32, which appears on page 63, that also if it was impracticable to remove the timbers or for other reasons it was necessary to leave them in, they would be left in with the consent of the District Engineer? A. Yes.

Q. You knew that? A. I did.

Q. And then, knowing that, you considered because it stated that it was practicable, or it was the general intent to remove the [943] timbering, you coupled that with the other provision of the specifications and concluded that there was material in the tunnel which would be self-supporting in the majority of the area penetrated?

A. I did in this way, that it seemed to reflect the thought of the geology report.

(Testimony of Lewis Michael Larson.)

The Court: We will take a recess for a few minutes. [944]

(After Recess)

Mr. Tinning: Take the witness, gentlemen; no further cross-examination.

Redirect Examination

Mr. Marrin: Q. Mr. Larson, you testified you were employed on February 27th of 1934, and you then started estimating, and the bid was submitted on May 22, 1934. How much time, between those two dates, of your time was put in in making this estimate?

A. Very nearly two months; and a good portion of that time,—at least, the first three weeks,—were at least 16 hour days. I worked as long as I could until the requirement for rest forced me to bed.

Q. When you went to Fort Peck, did Mr. Orselli go with you? A. He did.

Q. Did Mr. Orselli make any changes in your estimate without first consulting you?

A. I am sure he did not.

Q. Did you do any work on the estimate after May 15, 1934?

A. It is possible that I did; but I did not enter anything into it; but I believe, as I recall it now, Mr. Marrin, I was advised, when persons and the quotations came in on material, as to what those quotations were; but I entered nothing, as I recall it now, myself, in that estimate after May 15th.

(Testimony of Lewis Michael Larson.)

Q. But you were in consultation with respect to it up to the time the bid went in?

A. Yes; but not so direct as I had been up to May 15th.

Q. On your cross-examination, you have testified as follows, as page 303 of the transcript:

"Q. You say, now, you think you were employed about the 15th of September. Weren't you employed immediately following the slide?

"A. I was employed by the legal department.

"Q. You were employed by the legal department? A. Yes. [945]

"Q. That is the legal department of the plaintiff Six Companies?

"A. As I understand it."

As a matter of fact, who communicated with you and employed you at that time, Mr. Larson?

A. Mr. Steve Bechtel called me and asked me to meet him in his office on August 28th; and, on August 29th, called me and asked me to meet him up at the tunnel; and, when I arrived at the tunnel then, Mr. Delancey Smith asked me to make observations in the tunnel and to attend a meeting that was then in progress, or about to be called, by Mr. Reardon. I made this error the other day, unintentionally; I had in mind a member of the present legal department.

Q. So, you were employed by Mr. Bechtel?

(Testimony of Lewis Michael Larson.)

A. I was employed by Mr. Bechtel.

Q. You testified, on your cross-examination, that you made an estimate of the amount of the bid which should be submitted for completing the project after the Six Companies of California stopped work. Do you recall the amount of that estimate which you made?

Mr. Wittschen: We object to that as immaterial and not proper redirect examination. The bid to complete the work would not tend to show what damage was sustained or any right to rescind the contract, and was made after they walked off the job.

Mr. Marrin: If the Court please, the defendants, themselves, opened the matter up on cross-examination. They proved that Mr. Larson, having made that estimate, it was turned over to the George Pollack Company, and they have used it as the basis for their bid. We did not open the matter up on direct examination, but they opened it up on cross-examination.

Mr. Wittschen: The fundamental rule, about offering a matter on cross-examination which is immaterial and which may test the witness, ends with the cross-examination. It does not permit, on [946] redirect, to go into it and spin out that immaterial matter.

The Court: For the purpose of the record, indicate what you are offering this for; upon what ground.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: We desire to show that the amount of the bid of George Pollack Company was based on Mr. Larson's estimate, and was substantially the same amount.

Mr. Wittschen: The fact he made a bid for another contractor, thereafter, to complete the tunnel, after this contractor moved off, is wholly immaterial to this controversy, and is not proper redirect.

The Court: I cannot see the materiality of it.

Mr. Marrin: Well, it is only material, your Honor, as developing the facts in a matter which was brought about by the defendant's cross examination.

Mr. Smith: Also the accuracy and character of the estimating ability of the witness is drawn into this by the attempted cross-examination of the subject matter; and this would show, if proven, that the witness's estimate was accurate,—estimated it in good faith, for another contractor, at a later date; thereby, reestablishing the credibility of his former estimate.

Mr. Wittschen: I will ask the Court the question: Are we bound by what other contractors do?

Mr. Marrin: You opened the matter up.

Mr. Wittschen: We had a right to, on cross-examination.

The Court: The Court will sustain the objection.

Mr. Marrin: Exception.

(Testimony of Lewis Michael Larson.)

Mr. Alexander: We join in the exception, your Honor.

Mr. Marrin: Q. At page 319 of the transcript, you testified, with respect to the Bayshore Tunnel constructed for the Southern Pacific Company, as follows: [947]

"Q. Yes.

A. We had this earthquake, that we might have celebrated yesterday, during the period of that work; and after the earthquake, it seemed very heavy pressures came on the tunnel. It had been registered during the period when we were shut down; and immediately following the earthquake, the minute we began to work the ground, the timbers began to take terrific pressure, and we had to have the core to give support on that account; otherwise, it might have stood without support.

"Q. Well, there was a considerable period, then, after you got some of your excavating done, your timbers in, when you were delayed in construction due to the interruption of the earthquake, and pressure came on those timbers during that period?

"A. I think the result of the shake caused it, and may have been immediate but it did not register until we began to move the timbers.

"Q. How long was it after the earthquake before you resumed work in the tunnel?

"A. My recollection was about 10 days.

(Testimony of Lewis Michael Larson.)

"Q. It was not a very long period?

"A. No."

Was there any other delay to that work caused by the earthquake, than the 10-day period in which the work was shut down?

A. Yes; in this way: that retimbering and giving support to a structure like a tunnel, brings into the tunnel such a large group of men, and the necessity for transportation of materials like timber, brick and cement, that had to be rushed in to meet that emergency,—that automatically slowed down the driving of the drifts, though only to a limited extent; the drift driving was continuous, but handicapped, in a measure, by other operations.

Q. It did slow down the balance of the work?

A. For a distance, only; possibly for a period of three weeks, as I recall it now.

Q. You testified, Mr. Larson, on cross-examination, that the [948] timbering was removed from the Hollywood Tunnel. The Hollywood Tunnel is in Los Angeles, is it not? A. It is.

Q. And that the ground was not self-supporting in that tunnel? A. No; it was not.

Q. You have also testified that you contemplated the removal of the timbers when you made your estimate for constructing the Broadway Tunnel?

A. Yes.

Q. Was the method of removing the timbers, which you contemplated in making your estimate

(Testimony of Lewis Michael Larson.)

for the Broadway Tunnel, the same method that was used in connection with the construction of the Hollywood Tunnel?

A. There was a difference, in this way: that, in the Hollywood Tunnel, we excavated by the full drift system, and left the core in, which required our having wooden forms; in the Broadway Tunnel, it was contemplated to use steel forms; and, in the use of the core as a support to our wooden forms, it made it possible to carry a greater weight on our forms than would be practicable or feasible on steel forms; and in the cherts section and in the Orindan section, it was contemplated to leave the spiling in, to prevent falling of rocks, falling on the workmen below, not with a thought that it would be necessary to carry any of the support of the structure onto the concrete forms.

Q. If you had contemplated removing the timbers in the Broadway Tunnel, in the same manner that you removed them in the Hollywood Tunnel, would it have increased your estimate of cost?

A. Very materially, in that section, or any section that was not self-supporting.

Q. Could you state how much it would have increased your estimate of cost?

A. That would be largely a rough guess, Mr. Marrin; but I would say, in view of the information I have, that it would have cost at least a million dollars more, and probably extended [949] the time period many months. I would have to really estimate

(Testimony of Lewis Michael Larson.)

that to give an answer that is anywhere near definite.

Q. You testified, in connection with the Figueroa Street Tunnels, that the steel supports were left in. Do you know, now, whether that was a requirement of the contract or not they be left in?

A. Let me get this clearly. Do you mean the steel supports that carried the lagging and the forms?

Q. Well, the steel supports concerning which you—— You testified that the steel supports were left in?

A. Yes; those were pipes loaded with concrete that we carried down to the forms. There was no requirement that they be removed or left in. The Pacific Electric people permitted us to use our own judgment and did not disapprove of the method.

Q. You also testified, in connection with the Yerba Buena Tunnel, that there were certain steel beams crossing over, from, I believe, about the spring line of the arch, which were left in. Were those a part of the design of that tunnel?

A. Yes.

Q. And they were required to be placed?

A. Required to be placed.

Q. Regardless of the type of the ground?

A. Yes.

Q. Did that tunnel have a wide arch?

A. A very wide and a very flat arch; that is, I say "very"—I mean, by that, in a comparable sec-

(Testimony of Lewis Michael Larson.)

tion. I have been thinking, since I stated "58,"—that being the width of the tunnel,—I may have been very much short of that; it may have been 78 feet.

Q. Would that make the support more difficult?

A. Yes. As your span increases, your difficulties increase, unless your ground is of a structure where it is entirely safe and self-supporting.

Q. Referring to Defendant's Exhibit "B," on your cross-examination you were asked a number of questions concerning your knowledge of the various tunnels which are shown thereon, and your knowledge of [950] the ground conditions of those tunnels. Would the character of the ground, in those tunnels other than the Broadway Tunnel, enable you to determine what character of ground it would be in the Broadway Tunnel?

A. I can see very little relationship between them, because, even in one tunnel, ground changes sometimes from side to side, or a few feet in advance it might be different than a few feet back. The only thought that would be useful in the use of other tunnels would be if you did not have a definite statement from a geologist that this particular tunnel, like the Broadway Tunnel, probably was of a positive character; that eliminates any other tunnel from the discussion.

Q. For instance, where you have a tunnel such as No. 2 shown on this exhibit, which is several miles from the Broadway Tunnel, I take it the fact

(Testimony of Lewis Michael Larson.)

the ground is of certain character in Tunnel No. 2 would not indicate the character of the ground in the Broadway Tunnel?

A. No. I don't see the relationship there. Coming back to your statement there: it is my belief that lava may not have been encountered in the tunnel that you mention; it was encountered in the Claremont, and was not expected; and was not encountered, I believe, in the Broadway Tunnel. You see, you have three tunnels there, where possibly the conditions were different. I know it was different in the Broadway Tunnel than the Claremont Tunnel, from the information that I have; and I know of a lava having been encountered in the Railway Tunnel that lies to the south.

Q. The formations encountered in the Claremont Tunnel,—which is the closest tunnel to the Broadway Tunnel,—were, to a great extent, considerably different than those in the Broadway Tunnel, were they not?

A. There were only two comparable materials: those were the cherts and the Orindan. I know of no Monterey [951] sandstone in the Claremont Tunnel. I know that there was not any, anticipated by the geological report, of Chico sandstones, or lava, in the Broadway Tunnel. Therefore, there could be no comparison. The only comparable ones would be the cherts and the Orindan.

Q. Were you in charge of all of the work of excavating in the Claremont Tunnel?

(Testimony of Lewis Michael Larson.)

A. No; I was not. I had charge of, as I recall it, now, about 12,400 or 12,600 feet from the west end in the excavation and the lining of that portion of the tunnel. The eastern 5,000 or possibly 6,000 feet, —I don't recall the distance now,—was done by another superintendent or other superintendents. Later on, I came into that portion of the tunnel to do some additional work that was required.

Q. Calling your attention to the accident which happened on Thanksgiving Day, when the water rushed into the Claremont Tunnel: at which end of the Claremont Tunnel did that water enter?

A. That came in from the east end, from the Orindan creep.

Q. Did you have charge of that portion of the work at the time?

A. No; I did not. In fact, the place where the water came in was under the control of another contractor.

Mr. Wittschen: Mr. Marrin, that was not intended to reflect upon Mr. Larson.

Mr. Marrin: Well, the testimony was brought in, in such a way——

Mr. Tinning: The purpose of that was related to the hazards and so on; that was not any reflection on Mr. Larson.

Mr. Wittschen: In fact, it came in through the Lafayette Tunnel and went on through,—with which he had nothing to do.

(Testimony of Lewis Michael Larson.)

Mr. Marrin: Q. Mr. Larson, referring to Plaintiff's Exhibit 22,—which is the geological map prepared by Professor Louderback,—you have testified that the only part of this report which was before [952] you, at the time you made your bid, was pages 13 to 19, inclusive. Since that time, have you read the balance of the geological report which covers pages 1 to 12, inclusive? A. I have.

Q. Do pages 1 to 12, inclusive, deal with the tunnel?

A. Not to my recollection. I think that deals with the approach work.

Q. It deals with the outside highway geology?

A. Yes; also the last page,—page 19 of that report,—as I recall it, deals with the outside work, at the east end.

Mr. Wittschen: There is no contention made otherwise, except in the first paragraph.

Mr. Marrin: With the exception of possibly the first paragraph?

Mr. Tinning: That was all that was referred to; and the only purpose of that was to establish the fact certain diagrams were referred to in that paragraph.

Mr. Marrin: I just want to make it clear that this part he did not have before him did not refer to the tunnel geology.

Mr. Tinning: But it referred to the diagram. Page 1 referred to the other diagrams that were

(Testimony of Lewis Michael Larson.)

attached to the report which he did not see. That was the purpose of introducing that matter.

Mr. Marrin: Q. Mr. Larson, referring, further, to Plaintiff's Exhibit 22, on your cross-examination you testified that you did not see, prior to bidding, the blueprint which is attached to that exhibit and which is marked "Plan and Profile of Tunnel Approved by George A. Posey, dated May, 1932"; but that you did have before you a tracing from the profile which is dated July 7, 1930; drawing your attention to the westerly portion of the blueprint and the profile, and to the point marked on there "Stream Terrace," on the profile, and to the point marked "Overburden, Stream Deposit and Hill Wash in Creep," on the blueprint, will you state how much further [953] in feet the overburden or stream deposit and hill wash and creep is shown on the blueprint as extending easterly into the hill on the blueprint than it is on the profile?

A. Approximately 110 feet further.

Q. 110 feet further, on the blueprint, than it is on the profile?

Mr. Tinning: Does that refer to the top or bottom?

Mr. Marrin: Where it intersects the tunnel line.

Mr. Wittschen: Turn over that blueprint. You mean the top or bottom,—referring to this point or to some immediate point?

Mr. Marrin: Well, he states the point, where it apparently intersects the top of the tunnel, lies——

(Testimony of Lewis Michael Larson.)

The Court: Well, I think he said about 110 feet. Where is the 110 feet?

Mr. Marrin: I am trying to get that clearly, your Honor.

The Witness: A. The point on which I am speaking is the intersection of the indicated top of the tunnel with the stream terrace; that is at this point here, as against——

Mr. Tinning: Q. That is the diagram, July 7, 1930?

A. Yes—That would be about Station 111 plus pretty close to 70 or 75. 75 is close enough for an approximation.

Mr. Marrin: Q. In other words, where the stream wash is shown on the profile of July 7, 1930, as intersecting the top of the tunnel, is at Station, approximately, 111 plus 70?

The Court: Indicate that on there.

The Witness: A. 111 plus—it would be plus 75—plus 70; that would be about—just about where I have my pencil.

Mr. Marrin: Q. On the blueprint, which is dated——

Mr. Tinning: May, 1932.

Mr. Marrin: —May, 1932, the stream wash is shown as intersecting the top of the tunnel, at approximately Station 112 plus 90? [954]

A. Possibly about 85; plus 85.

Q. 111——

A. It would be a difference of about 110 feet.

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: Q. The intersection of the top of the tunnel; but not how far the material may extend further east?

A. No. I just had in mind the number. [955]

Q. If you had had that blueprint before you would it have made any difference in your estimate?

Mr. Wittschen: Objected to as not proper redirect examination, and immaterial, irrelevant, and incompetent, the fact that he did not have it. He is asking him now——

Mr. Marrin: He is entitled to express an opinion.

Mr. Wittschen: Wait a minute until I finish. He is asking him now to state what his opinion would have been on something that he did not see some three or four years ago.

The Court: Is it conceded that there was an absence of the blueprint?

Mr. Wittschen: He did not see it.

The Court: What is that in answer to? I am trying to get the reason for this.

Mr. Marrin: On cross-examination they emphasized the fact that Mr. Larson did not see the blueprint and there appears to be some slight difference between the location of the hill wash on that and upon the profile which he did see, and I am asking him whether if he had seen the blueprint it would have made any difference in the amount of his estimate for the construction work?

(Testimony of Lewis Michael Larson.)

Mr. Wittschen: That is not quite the whole story.

The Court: What is the legal application of it in reference to his failure to see the blueprint? I am trying to reach the problem.

Mr. Marrin: I am trying to show whether the fact that he did not see the blueprint would have made any difference to him in making the estimate. I am asking him that question.

The Court: I will allow it if there is any point in it. What is it in answer to, what is the merit of it? What is the legal phase of this matter that we are discussing? [956]

Mr. Wittschen: We could not possibly be charged with his failure to look at the blueprint.

The Court: That is what I am trying to analyze in my own mind.

Mr. Marrin: I am not trying to charge them with it, but he did see the profile, which is substantially the same as the blueprint.

The Court: I will allow it if there is any point.

Mr. Wittschen: Note an exception.

A. There would have been substantially no change in the estimate.

Mr. Marrin: Q. Now, Mr. Larson, I am referring to page 438 of the transcript, where the following appears. I am reading from the transcript:

"Mr. Tinning: Q. In other words, your conclusion from an inspection of the site was

(Testimony of Lewis Michael Larson.)

borne out by what you found when you excavated?

A. Well, I will have to go back to a statement that I made earlier, we found nothing in my examination of the ground which seemed to conflict with the conclusions that Dr. Louderback drew in his report.

"Q. That is not an answer to my question, Mr. Larson. I asked you if you found when you excavated anything different from your conclusions drawn from your observation of the site. I am not asking about the report.

A. Very little difference, only one of degree, probably I should say this, I found a mud that I did not expect to find in the south tunnel."

To what portion of the tunnel did your answer to that question relate?

A. To the first forty feet.

Q. Was it confined to the first forty feet of the tunnel?

A. That was the purpose of my answer, to confine it to that.

Q. Mr. Larson, I am now referring to Defendant's Exhibit F, which is a letter from C. H. Fry to T. M. Price, which reads as follows——

The Court: Identify it. [957]

Mr. Marrin: It is Defendant's Exhibit F.

The Court: I know, but the parties, who were they?

(Testimony of Lewis Michael Larson.)

Mr. Marrin: It is a letter from C. H. Fry, Superintendent of Safety of the Industrial Accident Commission, to T. M. Price.

The Court: Oh, yes.

Mr. Marrin: "Mr. T. M. Price, Six Companies of California, P. O. Box 120, Berkeley, California.

"Dear Mr. Price:

"On April 15, 1935, F. L. Lowell, our Supervising Mining Engineer, before leaving for a trip to Mariposa County, called my attention to the conditions in your two lower Broadway Tunnels. I am enclosing a copy of his memorandum.

"You realize that it is the duty of the employer to take whatever steps are necessary to make its place of employment safe, and it is not the duty of the Industrial Accident Commission to do that.

"For some time before the Six Companies bid on this project, we conferred with Mr. Larson and Mr. Fontaine and called to their attention the type of formation through which this tunnel was to be driven, and that the ground would be particularly bad, and that we were quite sure methane gas would be encountered. As we all know, the ground has been particularly bad from the start of the work.

"Although I have not visited this project for some time, the information which I have re-

(Testimony of Lewis Michael Larson.)

ceived from various sources, makes me doubt the advisability of the type of excavating which is being done in the down-grade or north tunnel.

"This matter should be given your serious consideration, and every means known should be taken to prevent this ground from caving or running up in any way, causing conditions which would intro- [958] duce the possibility of personal injury."

Now, directing your attention specifically to this statement, "For some time before the Six Companies bid on this project, we conferred with Mr. Larson and Mr. Fontaine and called to their attention the type of formation through which this tunnel was to be driven, and that the ground would be particularly bad," I will ask you did Mr. Fry ever make the statement to you that the ground, that is, did he make a statement to you prior to the bid that the ground through which the tunnels would be driven would be particularly bad?

A. He did not. We did not approach Mr. Fry with a view to getting his opinion on that ground, realizing that he was incompetent. What we were after was to find out what the rules were that would be enforced regarding safety, on account of gas formations, and we went into that very thoroughly, and he elaborated very considerably on what might happen. But I have no recollection, and I am very

(Testimony of Lewis Michael Larson.)

positive that we did not discuss the ground conditions. He was not competent; we would not go to a person that we considered incompetent and discuss those things, in view of the fact that we had a very competent geological report waiting for our inspection.

Q. What you discussed with Mr. Fry then was the gas condition and not the ground condition?

A. Entirely, as far as I know, as far as I can remember.

Q. Mr. Larson, you were asked just before the recess about certain conversations had with Mr. Boggs and I believe it was in August or September, 1936. Was Mr. Kempkey present at those conversations?

A. Not while I was talking with Mr. Boggs.

Q. You do not recall him being present at all?

A. Mr. Boggs later on took me into Mr. Kempkey's office and introduced me to Mr. Kempkey.

Q. Was anyone other than Mr. Boggs present while you were talking [959] to Mr. Boggs?

A. I have no remembrance of anyone else being present.

Mr. Marrin: If your Honor please, there have been introduced here on cross-examination a number of specifications which we will not have the opportunity to examine until over the week-end. It is possible we may want to recall this witness for some questions on redirect examination after we examine those specifications.

(Testimony of Lewis Michael Larson.)

The Court: Very well.

Mr. Marrin: That is all.

Recross Examination

Mr. Tinning: Q. Mr. Larson, do you know of any tunnel through which a full faced driving operation has been used in the San Francisco Bay Region? A. No, I do not.

Q. There has not been one built that way?

A. I would not say there has not been, but I do not know of any.

Q. You do not know of any? A. No.

Q. Do you know of any tunnel in Los Angeles where there has been a full faced driving operation?

A. I know one that was attempted.

Q. And failed? A. And failed.

Q. That was the one where you said fear by psychology entered into it?

A. I do not know whether I expressed myself in regard to that particular tunnel, but this tunnel, a very wide one, the width of a street——

Q. What tunnel was that?

A. That was the Second Street Tunnel, which was driven by Mr. Hill.

Q. And it failed?

A. Well, he failed to continue.

Q. Driving full-faced?

A. Driving full faced.

Q. So the tunnel was not driven full-faced?

A. No.

(Testimony of Lewis Michael Larson.)

Q. In the Second Street Tunnel they started to drive it full-face [960] and they failed?

A. That is my understanding.

Q. That is what you said? A. Yes.

Q. So that you know of no tunnel in the Coast Range Mountains that was driven by a full-faced operation?

A. Let me get this straight. You are referring to the immediate vicinity, say from Stockton this way?

Q. In the Coast Range; I am not going into the granite of the Sierras. We are talking about the Coast Range.

A. There is none that I know of.

Mr. Tinning: That is all.

Mr. Marrin: No further questions.

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.) [961]

Afternoon Session
2:00 o'clock.

Mr. Marrin: I overlooked a fact before luncheon, that there is a little confusion in identifying a couple of photographs that went in yesterday, and I would like to recall Mr. Larson.

L. M. LARSON,

Recalled.

Mr. Marrin: Q. Mr. Larson, I call your attention to Defendant's Exhibit L. You stated yesterday that that was poured by the use of buggies. Do you wish to change your testimony in that respect?

A. Since then I have observed that the designation refers to the fact this was the north tunnel instead of the south tunnel, as I believe I was asked, I believe the transcript states that it was the south one, in which event I would change the testimony and say that it was poured by the Hackley gun instead of buggies.

Q. I draw your attention to Exhibit M, which you stated was poured with the Hackley gun. Do you want to change your testimony in any respect?

A. I do. This was poured by the buggy method.

STEPHEN DAVIDSON BECHTEL,

called for the Plaintiff. Sworn.

Mr. Marrin: Q. Where do you live, Mr. Bechtel?

A. 244 Lakeside Drive, Oakland, California.

Q. What is your present business?

A. Contractor.

Q. Did you employ Mr. L. M. Larson in February, 1934? A. I did.

Q. For whom did you employ him?

(Testimony of Stephen Davidson Bechtel.)

A. W. A. Bechtel Company and Henry J. Kaiser Company.

Q. For anyone else?

A. And four associates with whom we planned or had talked of considering the Broadway Tunnel project.

Q. Who were those associates?

A. The Utah Construction Company, [962] McDonald & Kahn Co., Ltd., Morrison Knudsen Company and J. F. Shea Company.

Q. For what purpose did you employ Mr. Larson?

A. To investigate the job and prepare an estimate for the tunnel portion of same.

Q. What job are you referring to?

A. The Broadway Low Level Tunnel Project.

Q. For the defendant Joint Highway District No. 13? A. Yes.

Q. What instructions did you give Mr. Larson?

A. To thoroughly investigate the job, plan the method of construction, and make an estimate for the construction of the tunnel portion of the job.

Q. What was done thereafter in preparing an estimate and bid for the project?

A. Mr. Larson came to our San Francisco office, proceeded to investigate, study, plan and estimate the job. I assigned A. L. Orselli to assist him as an assistant clerk, engineer estimator, and Larson proceeded with the investigation, planning and estimating of the job.

(Testimony of Stephen Davidson Bechtel.)

Q. Did Mr. Larson submit an estimate of the job and cost of doing the tunnel portion of the job to you?

A. He submitted it to me through Al. Orselli and with Al. Orselli.

Q. What was thereafter done with that estimate?

A. Upon receipt of the details of this estimate I called a conference, which was attended by Larson, Orselli, Joseph Shaw, and Fontaine. We went over the details of the estimate very carefully, reviewed the method, the assumptions, the figures, and the summaries of the entire estimate.

Q. What was done then?

A. In the course of our conference I instructed Shaw to make extensions on the Larson estimate which we had at that time, and we discussed all phases of it, and at the completion of the conference I instructed Shaw, with Orselli's assistance, to summarize them and return the same to me at a future [963] date when they would be needed for compilation with other estimates on other portions of the project.

Q. Was that done? A. That was done.

Q. Then what did you do?

A. I used that summary, that is, the Larson tunnel estimates, with the estimates for the other portions of the project, as a basis for the bid. That was discussed with the directors of the Six Companies

(Testimony of Stephen Davidson Bechtel.)

of California, and was used as a basis of the bid which was subsequently submitted.

Q. Can you state when the Six Companies of California was organized? A. May 15, 1934.

Q. Did you become an officer of the corporation? A. I did.

Q. What officer? A. Its President.

Q. How long thereafter did you remain president of the Six Companies?

A. I believe it was until February 29, 1936.

Q. Did you sign the bid which was submitted by the plaintiff to the defendant in this case?

A. I did.

Q. Did you submit that bid to the defendant?

A. You mean to the Joint Highway District?

Q. To Joint Highway District No. 13.

A. I did.

Q. Upon what were the costs which went to make up the part of the contract dealing with the tunnel which were included with that bid based?

Mr. Wittschen: Objected to as immaterial, irrelevant, and incompetent, and calling for a conclusion and opinion of the witness, and also on the ground that the bid speaks for itself. It is not upon what the costs were based, but the bid by which the defendant would be bound.

Mr. Marrin: If your Honor please, we are again offering this evidence for the purpose of connecting up the estimate of Mr. Larson with the bid which was submitted, showing that it was [964] the basis of the bid of this plaintiff, and we offer to prove

(Testimony of Stephen Davidson Bechtel.)

through this witness that that estimate made by Mr. Larson was the basis of the plaintiff's bid so far as the tunnel portion of the project was concerned.

Mr. Wittschen: I submit that has already been asked and answered without objection, namely, that Mr. Larson gave figures to the Bechtel Company interests, and Mr. Bechtel has said that he used those in preparing the bid.

Mr. Marrin: At the time we offered that evidence Mr. Wittschen suggested that this would be the time to offer it.

Mr. Wittschen: I said that I would object to it, but you would get the ultimate fact by asking him if he did rely upon the Larson estimate. That you have already done and I did not object to it.

Mr. Marrin: That is what I am asking him now.

The Court: State the question.

Mr. Marrin: Q. In making up the bid for the Six Companies of California to be submitted to Joint Highway District No. 13 for the contract which is in evidence in this case, did you rely upon the estimate prepared by L. M. Larson for that portion of the project relating to the tunnel?

Mr. Wittschen: Objected to as immaterial, irrelevant, and incompetent, and not binding upon the defendant.

The Court: You may answer.

Mr. Wittschen: Exception.

The Court: You may answer. A. Yes.

(Testimony of Stephen Davidson Bechtel.)

Mr. Marrin: Q. Mr. Bechtel, how many feet of timber were included in the estimate upon which the bid of plaintiff was based?

Mr. Wittschen: Objected to as immaterial, irrelevant, and incompetent, and calling for a conclusion, and not binding on the defendant. [965]

Mr. Marrin: It is not a conclusion.

The Court: What do the plans and specifications say about the timber?

Mr. Wittschen: The plans and specifications say that all timber necessary will be supplied by the contractor.

Mr. Marrin: And shall be removed unless the District Engineer permits it to remain in.

Mr. Wittschen: No, if impracticable to remove it may be kept in, or, stating it in another way, they shall be taken out unless the District permits them in.

Mr. Marrin: That question does not call for any kind of a conclusion.

The Court: I know, but the testimony is going in and we must keep in mind the proposition, suppose it is a million or half a million, then what would be the difference?

Mr. Wittschen: It would make no difference, whatever necessary shall go in.

Mr. Marrin: We propose to show by this that the amount of timber actually required in constructing this tunnel was about six or seven times the amount plaintiff estimated.

(Testimony of Stephen Davidson Bechtel.)

Mr. Wittschen: That would be his misfortune, if that's the fact, but it would not be binding upon the defendant, which did not estimate it.

Mr. Marrin: That is your conclusion, and we think we have a right to prove the fact, and we offer this testimony for that purpose.

The Court: I will give you a record, but I do not want to mislead you to your injury. You may answer.

Mr. Wittschen: We note an exception.

A. Might I ask, do you mean the board feet of timber, or linear [966] feet in the tunnel?

Mr. Marrin: No, I mean board feet of timber.

A. Between 1,800,000 and 1,900,000 board feet.

Q. Did the bid on the tunnel section of the project include an estimated profit in addition to the estimated cost? A. It did.

Mr. Wittschen: Objected to on the ground it is immaterial, irrelevant, and incompetent, and ask that the answer go out pending the objection.

The Court: It may go out.

Mr Wittschen: And not in any wise binding on the defendant.

The Court: You may answer.

Mr. Wittschen: Exception.

A. It did. [967]

Mr. Marrin: Q. Mr. Bechtel, did you have any discussion with Mr. Boggs, during the course of the construction work under this contract, regarding an extension of time? A. Yes.

(Testimony of Stephen Davidson Bechtel.)

Q. State when you had the first discussion with Mr. Boggs, who was present, and what was said.

A. In April or May, 1934——

Mr. Wittschen: Did you ask him for a conversation? If you did, I would like to make an objection.

Mr. Marrin: Yes.

Mr. Wittschen: May I interpose the objection now? We object on the ground it is incompetent, irrelevant and immaterial, calling for testimony which is not binding upon the defendant. If your Honor cares to have that argued, I am prepared to argue it. You permitted it, in connection with the other witness, on the ground it might come in subject to a motion to strike. The contract between the parties cannot be varied in any way by what the Engineer of the District did. The Kelly case that we have cited in the brief shows that. If the purpose of this questioning is merely to show they asked for an extension of time, which was denied, I will object to that on the ground that that was not one of the things which was within the province of the District Engineer; everything else connected with the construction was, but, on the matter of extensions of time, the contract provided they must apply for that to the Board of Directors of the District. We have no objection to their written applications for extensions of time going into evidence. They asked for time, and there were letters back from the District denying it; but conversations with the District Engineer, who had nothing to do with that matter, we

(Testimony of Stephen Davidson Bechtel.)

claim are wholly immaterial. We are not trying to exclude the fact they asked for time, and that that time was denied; that is a matter of written record, which we are willing to admit. [968]

Mr. Marrin: If the Court please, the specifications, in Section 4, page 3, which is a part of that contract, after stating the time for the doing of the work, states, under the heading, "Extension:"

> "The time during which the Contractor is delayed in said work by Acts of God, or by stormy or inclement weather, or by any reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the Contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof."

Now, if the Court please, this contract states, as I have stated, that, when cause which in the judgment of the District Engineer unavoidably detains the work, he shall give the Contractor the right to extend the time. It is our position in this case that——

The Court: Pardon me. Following that language, it provides a method by which——

case that that judgment of the District Engineer

Mr. Marrin: Surely; but it is our position in this

(Testimony of Stephen Davidson Bechtel.)

must be exercised in a fair and unbiased manner for each party. He is not acting alone for the District. He is acting for the Contractor as well as the District. If, in his judgment, the Contractor has been unavoidably delayed, the Contractor is entitled, as of right, to an extension of time. Upon that ground, your Honor, we submit that we are entitled to show the action of the District Engineer. We are entitled to show, by any conversation with him, what he thought about whether or not the Contractor was or was not delayed. If we can show that, in his judgment, the Contractor was unavoidably delayed, and can show by the [969] conversations with him that he failed to certify that to the Board of Directors, then the action, in denying the extension of time, was wrongful. We are offering that evidence for this purpose; and we feel certain that, under the authorities, we have a right to prove it. The acts of engineers and architects, under clauses such as this, cannot be arbitrary or capricious; and, if the acts are, you have a right to set it aside or to show, by the arbitrariness or capriciousness of the action—we offer this testimony for the purpose of proving that; and we feel, under the cases, that we have a right to attack the position on that.

Mr. Wittschen: I want to point out, in the first place, there is not a word in the pleadings that any action of the Engineer was arbitrary. They had a right, upon the contract being breached by the District,—if you will assume it was breached,—to bring

(Testimony of Stephen Davidson Bechtel.)

an action in the form of a common count; but they have no right to claim a prerequisite to recover such as the certificate of the engineer, if that was a prerequisite, was given him, because of some fact, without pleading the fact to show why it was not given. All presumptions are in favor of the Engineer. But that is not the point of this objection. The point of my objection here goes further than that; and that is, the Board of Directors alone have the right to determine whether or not the time shall be extended; and I have no objection, as I stated, to showing a request for time was made and was refused; but I do object to the so-called hearsay evidence, statements of the Engineer, upon a matter which was supposed to be acted upon by the Board.

Mr. Marrin: Well, under this contract, if, in the judgment of the District Engineer, the Contractor is unavoidably delayed, the Board of Directors has no discretion; it must grant the extension of time. In order to show his judgment on the matter, it is necessary [970] for us to show, so far as we can, the state of mind; and his conversations on that subject are certainly pertinent and relevant.

Mr. Wittschen: His advice to the Board of Directors might be, if you want to call him for that; but certainly not conversations he had with the Contractor.

Mr. Marrin: We think we will prove, if your Honor please, before this case closes, that the Engineer was so under control of the Board of Directors

(Testimony of Stephen Davidson Bechtel.)

that he probably did not report to them the real judgment that he had in connection with the matter.

The Court: Well, as a legal proposition, let us assume that the Engineer acted arbitrarily and, in the absence of any written record——

Mr. Marrin: Your Honor, we will follow this with written records.

The Court: On the very subject matter you are covering now?

Mr. Marrin: Yes.

Mr. Wittschen: We have no objection to the writings.

The Court: I will give you a record on it. Proceed.

Mr. Wittschen: Exception.

Mr. Marrin: Q. Do you wish the question read, Mr. Bechtel? A. Yes.

(Pending question was read by the reporter.)

The Witness: A. In April or May, 1934, Wallace Boggs, T. M. Price——

Mr. Marrin: Q. Pardon me, Mr. Bechtel. 1935, you mean, don't you? You said 1934. That was before the term of the contract.

A. 1935—April or May, 1935.

The Court: Q. Where did it take place?

A. In front of the Six Companies' job office,—the steps of our office.

Q. Is that the nearest you can fix the time?

A. Yes. Tom Price, [971] Wallace Boggs and I met to discuss the job. I told Mr. Boggs of the diffi-

(Testimony of Stephen Davidson Bechtel.)

culties we had encountered,—the unusually bad weather conditions, the difficulties we were having in procuring adequate supplies of competent men under the restrictions of the contract, and the ground conditions, which were very different than those we had contemplated. I told him the conditions were beyond our control, and they entitled us to an extension of time; but that, before applying for the extension of time, I desired to discuss it with him, so he would be familiar with our application. He said he knew of these conditions, and that they entitled us to an extension of time; but that he did not favor our making application for extension of time, because it was not known as to what period of time would be required to complete the job. About this time in our conversation, Tom Price left. Boggs and I continued our frank discussion; and he told me, in substance, that he could not give us an extension of time without the approval of the Board of Directors and without the approval of the District's attorney,—Mr. Tinning.

Mr. Marrin: Q. And that was all the conversation? A. In substance, yes.

Mr. Marrin: I have here a copy of letter of June 10, 1935, Mr. Tinning. I assume you have the original. Will it be stipulated that this is a true copy of a letter dated June 10, 1935, addressed by Six Companies of California, by S. D. Bechtel, President, to the Board of Directors, Joint High-

(Testimony of Stephen Davidson Bechtel.)

way District No. 13 of the State of California, 1448 Webster Street, Oakland, California.

Mr. Wittschen: With the same understanding we had, subject to checking?

Mr. Marrin: Surely.

Mr. Tinning: So stipulated.

Mr. Marrin: That was sent by Six Companies of California, and [972] received by the defendant?

Mr. Tinning: Yes.

Mr. Marrin: I offer that in evidence.

(The letter was marked "Plaintiff's Exhibit No. 45.")

Mr. Marrin: I would like to read the letter, if your Honor please. It is dated June 10, 1935, and reads as follows:

PLAINTIFF'S EXHIBIT No. 45

June 10th, 1935

The Board of Directors,
Joint Highway District No. 13
of the State of California,
1448 Webster Street,
Oakland, California.

Dear Sirs:

Pursuant to the provisions of subsection C of Section 4 of the Specifications for the construction of the Broadway Low Level Tunnel, said section 4 having to do with the subject of time, we hereby make written application for an ex-

(Testimony of Stephen Davidson Bechtel.)

tension of the time for completion of the work covered by the contract in the amount of one hundred eighty days (180).

Said demand is based upon the provisions of said subsection C of Section 4, and upon the grounds that the work has been delayed by Acts of God, stormy and inclement weather, and other reasons beyond our control which will have unavoidably delayed the work.

The other reasons above mentioned may be made the subject of a detailed statement thereof by us at a later date.

Very truly yours,

SIX COMPANIES OF CALIFORNIA

By S. D. BECHTEL,

President.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 45. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Marrin: Q. After sending this letter, Mr. Bechtel, did you again discuss the subject of time extension with Mr. Boggs?

A. A few days later, I met Boggs on the job, and he said, in substance, that our application had been embarrassing——

Mr. Wittschen: Pardon me. I want to object to

(Testimony of Stephen Davidson Bechtel.)

the conversation. Your question did not call for a conversation, did it?

Mr. Marrin: Yes.

Q. Did you have a conversation with Mr. Boggs?

A. Yes. [973]

Q. State when that conversation was held, who was present, and what was said.

Mr. Wittschen: We object to that as incompetent, irrelevant and immaterial, and upon all the grounds previously stated.

The Court: Overruled.

Mr. Wittschen: Exception.

The Witness: A. Shortly after we submitted our formal application for extension of time, I met Wallace Boggs on the job, in company with my brother Kenneth. Boggs said that our application for extension of time had been embarrassing; he was quite disturbed over the matter.

Mr. Marrin: I have here, Mr. Tinning, the original of a letter signed by Joint Highway District No. 13 of the State of California, by Harry M. Stow, Secretary, dated July 12, 1935, addressed to Six Companies of California. Will it be stipulated that that was sent by the District and received by the plaintiff about the date it bears?

Mr. Tinning: Yes.

Mr. Marrin: And may we stipulate that we may substitute a copy for the original?

Mr. Tinning: Yes.

Mr. Marrin: I offer that in evidence.

(Testimony of Stephen Davidson Bechtel.)

(The letter was marked "Plaintiff's Exhibit No. 46.")

Mr. Marrin: I should like to read the letter. This is a letter on the letterhead of Joint Highway District No. 13 of the State of California; it is dated July 12, 1935, and reads:

PLAINTIFF'S EXHIBIT No. 46

Joint Highway District No. 13
of the
State of California

Oakland, California
July 12, 1935

Six Companies of California,
155 Sansome Street,
San Francisco, California
Attention Mr. S. D. Bechtel, President

Gentlemen:

I am authorized by the Board of Directors of Joint Highway District No. 13 to advise you that your application dated June 10, 1935, for a 180 day extension of time of completion of the work to be performed by you under your contract with the District dated June 4, 1934, has been denied.

The Board of Directors is of the opinion that no delay in the prosecution of the work under the contract has been occasioned by acts of

(Testimony of Stephen Davidson Bechtel.)

God, stormy or inclement weather, or any other reason beyond your control as contractor.

Yours very truly,

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

By (Signed) HARRY M. STOW,

Secretary.

HMS:EK

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 46. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [974]

Mr. Marrin: Mr. Tinning, I have here a copy of a letter dated July 26, 1935, signed by Six Companies of California, by S. D. Bechtel, President, addressed to the Board of Directors of Joint Highway District No. 13, State of California. Will it be stipulated that that is a true copy, subject to your check, of a letter which was sent by Six Companies of California to the defendant Joint Highway District No. 13, about the date thereof?

Mr. Tinning: Yes.

Mr. Marrin: I offer that in evidence.

(The letter was marked "Plaintiff's Exhibit No. 47.")

Mr. Marrin: I should like to read that letter. The letter is dated July 26, 1935, addressed to Board of Directors, Joint Highway District No. 13 of the

(Testimony of Stephen Davidson Bechtel.)

State of California, 1448 Webster Street, Oakland, California. It reads: [975]

PLAINTIFF'S EXHIBIT No. 47

July 26th, 1935

Board of Directors,
Joint Highway District No. 13
of the State of California,
1448 Webster Street,
Oakland, California

Dear Sirs:

Under date of June 10th, 1935, we addressed you a letter requesting extension of time for completion of the work included in our contract with your District for the construction of the Broadway Low Level Tunnel, all in accordance with the provisions of the specifications covering the subject of "Time". Under date of July 12th, 1935, you replied to advise that our application requesting this extension of time had been denied by your Board, and stating it to be the opinion of the Board that "no delay in the prosecution of the work under the contract has been occasioned by Acts of God, stormy or inclement weather, or any other reason beyond your control as contractor."

Inasmuch as this reply amounts to a statement that your Board has determined that no ground for a claim for extension of time exists in our favor, we must make answer to same.

(Testimony of Stephen Davidson Bechtel.)

This is written to advise you that the above quoted portion of your letter of June 4th is an incorrect statement, and is not in accordance with what has been stated to us by your Chief Engineer and others connected with the District.

The delay which has already occurred has been caused by the heavy rain fall of the last rainy season, which was much greater than in any season in recent years, and by the fact that the condition of the ground was such that faster progress was impossible. The actual ground conditions have been far worse for working purposes than the condition of the ground shown by the geological report made by the geologist for the District; and this has resulted in retarding the speed of the work.

Within the past three months Mr. Boggs, your chief engineer, has advised the writer of this letter that the delay in the progress of the work was beyond the control of the contractor and was in no manner our fault, and has stated we have a proper ground to request an extension of time, but that he would not approve such an application at this time because it might later develop that the extension of time would be unnecessary. He has made substantially the same statement to Mr. T. M. Price within the last sixty days and has likewise made substanially similar statements to Mr.

(Testimony of Stephen Davidson Bechtel.)

DeLancey Smith. Under the circumstances, the grounds assigned in your letter of June 4th for denying the application are not in accord with the facts or with the opinion of your engineer, and therefore should be withdrawn, even though action on the application for an extension is deferred at this time.

We, therefore, write this letter to protest against the denial of the extension for the reasons given in your letter, and to reaffirm the application made by our letter of June 10th and our right to an extension.

Very truly yours,
SIX COMPANIES OF
CALIFORNIA
By S. D. BECHTEL,
President.

cc—W. B. Boggs
cc—A. B. Tinning
cc—T. M. Price

[Endorsed]: U. S. Dist Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 47. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [975]

Mr. Marrin: Mr. Tinning, I have a copy of a letter signed by Six Companies of California by S. D. Bechtel, President, dated August 23, 1935, addressed to the Board of Directors, Joint Highway District No. 13 of the State of California. Will it be stipulated that this is a copy of the original?

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: So stipulated.

Mr. Marrin: And that it was sent by Six Companies and received by the District on or about that date?

Mr. Tinning: Yes.

Mr. Marrin: I offer that in evidence.

The Court: It may be admitted and marked.

(The letter was marked "Plaintiff's Exhibit 48")

Mr. Marrin: (Reading:)

PLAINTIFF'S EXHIBIT No. 48

August 23, 1935

Board of Directors,
Joint Highway District No. 13
of the State of California,
1448 Webster Street,
Oakland, California

Dear Sirs:

In Re: Construction of Broadway Low Level Tunnels.

At the present time we are engaged in installation of the type "A" concrete tunnel section, and while we will continue to proceed with the installation of same in the excavated portions of the two tunnels, we hereby notify you that we are informed and advised by our engineers that the section in question is inadequate and unsafe.

Under date of August 19, 1935, Messrs. T. L. Phillips and Fred H. Tibbetts, consulting engi-

(Testimony of Stephen Davidson Bechtel.)

neers of San Francisco, advised us in writing that the continued installation of the type "A" section endangers the structural safety of the work, the safe operations of ourselves as contractors, and the future safety of the public. They recommend that same be enlarged and strengthened and further reinforced in order to make same an adequate and safe installation suited to the nature of the ground conditions which have been encountered and for the uses to which the tunnel will be put after completion.

The condition of the ground encountered in the excavation of the tunnels thus far has been different from that contemplated by the geological report and the plans and specifications which form a part of our contract with you. All of the ground is of extremely heavy character, and treacherous in nature, and none of it is self-supporting; and the type "A" section was not resigned for such ground. It is particularly apparent that the type "A" section was not designed to be installed in ground which is not self-supporting.

Under these circumstances we will proceed with the installation of type "A" section of concrete under protest and upon notice to you as above stated; and we further hereby notify you that we do not assume any liability or responsibility for the safety or adequacy of any such installation, but, on the other hand, will pro-

(Testimony of Stephen Davidson Bechtel.)

ceed with such installation only upon condition that full liability of any kind, civil or criminal, which may arise from or be caused by installation of same be assumed by you.

In view of our conclusion above expressed, we shall feel free to discontinue the further installation of this type section unless within a reasonable time after receipt of this notification to you, you alter the design of the section to meet the objections thereto, or notify us in writing that you assume all responsibility and liability of any kind or character, civil or criminal, which may arise from the installation of same.

We are not now excavating in the headings of the tunnels on either the easterly or westerly end thereof; and we do not believe it wise to resume excavation therein until such time as you advise us whether or not you propose to alter or modify type "A" tunnel construction, as in the event a change is made in same, the excavation can be made to confirm to such altered design.

This letter is written without prejudice to any rights which may exist in our favor in connection with the entire subject matter, and for the purpose of putting you on notice. We understand that Mr. Phillips and Mr. Tibbetts orally notified Mr. Boggs, your engineer, on August 19th, 1935, substantially to the same

(Testimony of Stephen Davidson Bechtel.)

effect as herein stated, and we write this letter to make the matter one of record.

Yours very truly,

SIX COMPANIES OF CALIFORNIA

By S. D. BECHTEL,

President.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 48. Filed April 22, 1938. Walter B. Maling, Clerk. By J A. Schaertzer, Deputy Clerk. [978]

Mr. Marrin: I have here a copy of a letter dated August 28, 1935, from Six Companies of California, addressed to Board of Directors, Joint Highway District No. 13 of the State of California. Will it be stipulated subject to your check that it is a true copy of a letter sent by Six Companies of California to Joint Highway District No. 13 on or about the date thereof?

Mr. Tinning: It is a copy of a letter which was delivered personally at a meeting of the Board of Directors.

Mr. Marrin: Yes. I will offer the letter in evidence.

The Court: It may be admitted and marked.

(The document was marked "Plaintiff's Exhibit 49.")

Mr. Marrin (reading):

(Testimony of Stephen Davidson Bechtel.)

PLAINTIFF'S EXHIBIT No. 49

August 28, 1935

Board of Directors,
Joint Highway District No. 13,
of the State of California,
1448 Webster Street,
Oakland, California.

Dear Sirs:

Your attention is directed to the following:

1. The undersigned heretofore entered into a contract with your District for the construction of the Broadway Low Level Tunnel and approaches, to which contract and the documents forming a part thereof, and the geological report referred to in the specifications, reference is hereby made for a full and complete statement of the details thereof.

2. The parties intended, and the contract and documents above mentioned forming a part thereof, and the geological report, contemplated that the two tunnels included within the contract would be excavated thru ground which was represented to be and would be found to be self-supporting for nearly the entire length of the tunnels.

3. The design and the plans and specifications call for the installation of type "A" tunnel construction for 5,620 feet of the total length of tunnels. We notified you in our letter to you dated August 23rd, 1935, that type "A" tunnel

(Testimony of Stephen Davidson Bechtel.)

construction is unsafe and inadequate for installation in the entire length of ground thus far encountered in the tunnels.

4. The character of ground encountered thus far in the excavation for the tunnels, with but slight exception, has been and is entirely and radically different from the character of ground represented to the contractor as that which would be encountered, and is likewise radically different from the character of ground which was contemplated by the specifications, as is apparent from the terms and conditions set forth therein. By reason of this fact we have been required to do additional work, supply additional materials, and have been put to great additional cost and expense not contemplated or intended by the contract, and not intended to be borne or assumed by the contractor in the construction of the tunnels. You are hereby notified that we as contractor now do claim and will continue to claim against you for the entire additional cost and expense and the reasonable value, including a reasonable profit, of the additional work to which we have been and will be put, if we continue with the performance of our contract for construction of the tunnels.

5. At this time we are unable to furnish an exact detailed statement of the amount of our claim. It will include the reasonable value, including all cost and expense to which we may

(Testimony of Stephen Davidson Bechtel.)

have been heretofore or may be hereafter put, of all additional excavation, timbering, concreting, and labor and materials of any kind or character occasioned thereby, including any and all items attributable thereto of any kind or character.

6. You are further advised and notified that you are in default in performance of your obligations under our contract with you by reason of your failure to furnish necessary lines and grades and any other engineering which you are obligated to furnish under the terms of the contract.

7. You are further notified that we have and assert a valid claim for an extension of time for the performance of our contract arising from the causes heretofore stated to you in our request for such extension dated June 10th, 1935, and in addition to the extension of time requested therein, we now assert a right to and request such additional extension of time as may be necessary to complete the contract, in the event that we continue to perform same, based upon the following reasons in addition to those heretofore asserted:

(a) Heavy, treacherous and unforeseen character of the ground making construction more difficult and slower through no fault of the contractor;

(b) Inadequacy and unsafety of the design in accordance with our letter to you dated August 23, 1935;

(Testimony of Stephen Davidson Bechtel.)

(c) Additional work required to be done not included intended, or contemplated by the contract, plans and specifications.

8. By reason of the facts asserted in this letter a right to rescind our contract with you has arisen in our favor, but we do not desire to exercise such right unless it is absolutely necessary, as we consider that it is the primary purpose and object of the District to complete the tunnel and the entire project as speedily as possible. If we exercise our right to rescind at this time, it will result in great delay to the project and might result in loss of a portion of the work already done in the construction of the tunnels. We are anxious that the work be completed, and to complete same for you; and we assume that you are of the same mind.

9. We invite your consideration to the various matters set forth in this letter, but must inform you at this time that if we continue with the work it will be only upon the following conditions:

(a) That provision be made immediately to pay us the reasonable value of the additional work we have been called upon to perform, or which it may be necessary to perform hereafter.

(b) An extension of time be granted immediately which will enable us to complete the work without penalty unless delay hereafter occur which is due to our fault;

(Testimony of Stephen Davidson Bechtel.)

(c) Henceforth you perform all the necessary and proper engineering work, including the giving of all lines and grades, and assume responsibility for all engineering work which we have already performed and pay the cost of same.

10. We will proceed with installation of type "A" tunnel construction in the excavated portion of the two tunnels from the westerly end thereof, subject to the conditions specified in our letter to you dated August 23, 1935. We will do this for the purpose of preventing any loss that might otherwise occur of the excavated portion of the tunnels in which concrete has not yet been installed, unless notified by you to cease such work. We will not perform any other work in the construction of the tunnels under our contract with you unless notified within a reasonable time after receipt of this letter that the conditions set forth hereinabove are satisfactory and will be met by you.

Yours very truly,

SIX COMPANIES OF
CALIFORNIA
S. D. BECHTEL,
President.

SDB/b

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 49. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [980]

(Testimony of Stephen Davidson Bechtel.)

Mr. Marrin: Mr. Tinning, Mr. Trefethen suggests, as you recall, that we would stipulate the time on August 28, 1935 when this letter was delivered.

Mr. Tinning: You will be surprised to know that our file copy of that has 3:30 P. M. endorsed on it by the Secretary of the District.

Mr. Marrin: Will you stipulate that was the time, then?

Mr. Tinning: Yes.

Mr. Marrin: Q. Mr. Bechtel, subsequent to August 28, 1935, did you have any further discussions with Mr. Boggs regarding the subject of extension of time? A. Yes.

Q. Will you state when, as nearly as you recall, the conversation was held, where it was held, who was present, and what was said?

Mr. Wittschen: The same objection, on all of the grounds heretofore stated.

The Court: The same ruling.

Mr. Wittschen: Exception.

A. About November 19, 1935, in the office of Six Companies of California, at the job site, Wallace Boggs, V. G. Hindmarsh, DeLancey Smith, and I met and discussed the project, including the method of timbering, the grouting, the removal of the cave-in, the general progress of the job, when the job would probably be completed, and this led into a discussion as to what period of extension of time Six Companies of California thought it was

(Testimony of Stephen Davidson Bechtel.)

entitled to, because [984] of the August 28th cave-in. Hindmarsh said that he felt, he thought we were entitled to 90 to 120 days. Boggs said in substance that he would not say what period of time, extension of time, we were entitled to, but that we were entitled to an extension of time growing out of the slide. The subsequent discussion referred to or brought up the matter of preparing a revised construction schedule. Boggs asked Hindmarsh to prepare a new construction schedule. Hindmarsh said that he would prepare a new construction schedule, and it would be ready about January 1, 1936. Boggs and Hindmarsh both said that they would then collaborate on the revised construction schedule, so that it would be in a form agreeable to both, and that they would also at that time collaborate on a form of application for extension of time and the period of extension of time which should be included in this new application for an extension of time, so that when it was prepared it would be in a form that Boggs could recommend and approve. Boggs said that it should be on non-controversial grounds, if possible, so as not to arouse the antagonism of the District's Attorney, Mr. Tinning. Boggs also said in substance that the District's objection to the extensions of time to date had probably not been caused by questioning our right to an extension of time, but it would be better judgment not to confuse the more major points of

(Testimony of Stephen Davidson Bechtel.)

controversy which existed between the district and the contractor.

Q. Is that all the conversation that you recall?

A. In substance.

Mr. Tinning: There are a number of letters following along from the last letter that you offered, dated August 28th. Do you propose to offer those?

Mr. Marrin: I propose to offer all of those documents, but I have not intended to offer them through Mr. Bechtel.

Mr. Tinning: We shall.

Mr. Marrin: That is all right. [985]

Mr. Tinning: On cross-examination, I just wanted to understand.

Mr. Marrin: I planned to introduce them by a witness who will follow, but we have no objection to your doing that. Mr. Tinning, I have here a copy of a letter written by Six Companies of California, dated February 25, 1936, to Mr. Thomas E. Caldecott, President, Directors Joint Highway District No. 13 of the State of California. Will it be stipulated that is a true copy of a letter sent by Six Companies of California?

Mr. Tinning: Yes.

Mr. Marrin: I offer that in evidence.

Mr. Wittschen: We object to it on the ground it is immaterial, irrelevant, and incompetent, self-serving, and has nothing to do with any controversy in the case. This is a letter offering to arbitrate all of the differences.

(Testimony of Stephen Davidson Bechtel.)

Mr. Marrin: That is correct.

Mr. Wittschen: Objected to on all of the grounds heretofore stated.

Mr. Marrin: It is a letter from the company to the District offering to arbitrate all of these differences between the plaintiff and the defendant in this case.

The Court: The legal objection is good. A jury is absent, however, and I will allow it.

Mr. Wittschen: Exception.

(The document was marked "Plaintiff's Exhibit 50.")

Mr. Marrin (Reading):

PLAINTIFF'S EXHIBIT NO. 50

February 25, 1936.

Mr. Thomas E. Caldecott,
President, Directors Joint Highway District No. 13 of the State of Calofirnia,
1448 Webster Street,
Oakland, California.

Dear Sir:

Our attention has been directed to an editorial in the Oakland Tribune of Monday, February 24th, in which it is suggested that an impartial investigation be made of questions arising out of the construction of the Broadway Tunnels.

You will recall that we have always been willing to submit any questions arising in our transactions with your directors to independent

(Testimony of Stephen Davidson Bechtel.)

and impartial consideration of any competent and disinterested group or board. In fact, we have urged such a course. As you will recall, on August 28th, 1935, and for some days before that time, we directed your attention to the possible hazard to workmen due to the construction of the present designed structure in the treacherous ground encountered, and at that time urged that you join with us in arranging for an independent board of engineers to determine whether our position was well taken.

We are writing you to assure that we welcome such independent investigation for the mutual benefit that may be gained therefrom, and it will be entirely satisfactory to us if the results of such an investigation are made binding on you and ourselves or are purely advisory.

In the event an independent board or authority is assembled to investigate the situation, we believe it would be advisable to have such a board consider the following general questions.

a. Safety of design from a construction and use standpoint.

b. Possible modification of design to expedite completion of the project and promote safety to workmen.

c. Whether ground conditions are radically different from those implied in the

(Testimony of Stephen Davidson Bechtel.)

design of the tunnel and predicted in the geological report, and if so, is the contractor entitled to a modification of its contract to meet actual conditions.

d. Whether contractor should be granted extension of time to complete the work.

Should the above suggestion meet with favorable consideration from you, we will be pleased to confer with you and your co-directors to expedite giving advice to such persons or public bodies as should be informed concerning our joint views.

Very truly yours,
SIX COMPANIES OF CALIFORNIA.
By S. D. BECHTEL,
President.

[Endorsed]: Plff's Ex. No. 50. No. 20101-R. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

[986]

I have an original letter signed by Thomas E. Caldecott, addressed to the Six Companies of California, dated February 28, 1936. Will it be stipulated that that was sent by Mr. Caldecott and received by Six Companies of California on or about that date?

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: Yes.

Mr. Marrin: I offer it.

The Court: It may be admitted and marked.

(The document was marked "Plaintiff's Exhibit 51.")

Mr. Marrin (Reading):

PLAINTIFF'S EXHIBIT NO. 51

Joint Highway District No. 13
of the
State of California

Oakland, Calif.,
February 28, 1936.

Six Companies of California,
Field Office—Post Office Box 120,
Berkeley, California.

Gentlemen:

Herewith in reply to your letter of February 25th, addressed to me as President, Board of Directors, Joint Highway District No. 13, by authority of the Board of Directors of Joint Highway District No. 13 of the State of California, I make the following reply to the letter referred to, following is a verbatim copy of the statement read to Mr. Kaiser and Mr. Trefethen who represented the Six Companies at a meeting of the Board of Directors of the District held today;

"The letter of Six Companies of California, dated February 25, 1936, addressed to me as

(Testimony of Stephen Davidson Bechtel.)

president of the Board of Directors of Joint Highway District No. 13, has been considered by the Board.

The questions which the Six Companies desires the Joint Highway District to join in submitting to an independent board for consideration fall into two classes: (1) Does the design for the permanent tunnel lining, in view of the ground conditions encountered in construction, provide a safe structure for use by the public in the future; (2) Questions involving the legal duties and responsibilities of the contractor under its contract for the construction of the tunnel for the District.

The contractor has stated that engineers employed by it have reported that if the tunnel is constructed in accordance with the design, that by reason of ground conditions encountered, the structure will be unstable, subject to failure, and thus endanger the lives and the investment of the public. This is contrary to the engineering information received by this Board from all of its engineers. The Board is willing to hear what the contractor and its consulting engineers wish to present in connection with the question of adequacy of the permanent structure, and due consideration will be given to the matter by this Board and its consulting engineers.

However, any such discussion must be limited to the question of safety to the public using

(Testimony of Stephen Davidson Bechtel.)

the tunnel, and must not include any discussion of the contractual obligations of the District or the contractor, such issues being governed entirely by the contract, and in case of a dispute between the parties can only be determined by a court of competent jurisdiction.

The question of safety to the workmen during construction is a responsibility that has been definitely assumed by the contractor which has agreed to take all measures necessary for the safety of its workmen in accordance with the valid regulations and safety orders of the Industrial Accident Commission of the State of California.

Upon receiving the engineering information above mentioned from you, preferably in writing, or if this is impracticable at a conference to be arranged for that purpose, the Board will give it the most careful consideration, and will take such further steps as may be advisable in the public interest."

Very truly yours,

(Signed) THOMAS E. CALDECOTT,
President—Board of Directors
of Joint Highway District No.
13 of the State of California.

TEC:MC

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 51. Filed April 22, 1938.

(Testimony of Stephen Davidson Bechtel.)

Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [988]

Now, I have here, Mr. Tinning, a copy of a letter sent by Six Companies of California, signed by Henry J. Kaiser, President, to Joint Highway District No. 13, dated February 29, 1936, which is a reply to Mr. Caldecott's letter. Will it be stipulated that is a true copy of a letter that was sent and received about that date?

Mr. Tinning: It is so stipulated.

Mr. Marrin: I will offer that in evidence.

The Court: It may be admitted and marked.

(The document was marked "Plaintiff's Exhibit 52.")

Mr. Marrin: This letter is dated February 29, 1936. (Reading):

PLAINTIFF'S EXHIBIT NO. 52

February 29, 1936.

Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Attention of Hon. Thomas E. Caldecott,
President, Board of Directors

Dear Sir:

Replying to your letter of February 28th, the writer now has full authority to deal with the Board of Directors of Joint Highway District

(Testimony of Stephen Davidson Bechtel.)

No. 13, State of California, in behalf of Six Companies of California, and therefore you may consider this letter as a reply to your communication written to the Company under date of February 28th.

Your letter states that any discussions "must be limited to the question of the safety of the public using the tunnel" and that you are willing to give careful consideration to engineering information which may be submitted by the contractor. It is my understanding that several months ago, following the cave-in which occurred in August, discussions, extending over a period of a number of weeks, were had between your representatives and engineers employed by us, wherein the question of the ultimate safety and permanence of the completed tunnels (as well as other related problems) were given consideration; but no conclusive action resulted.

At our meeting on Friday, Mr. Boggs stated that these discussions and the engineering information submitted at that time were appreciated by him; but so far as we can learn, the opinions presented by us have never gotten beyond the consideration stage. Unless, therefore, some agreement concerning the practical problem of determining future action can be reached, I cannot see what, if anything, will

(Testimony of Stephen Davidson Bechtel.)

be accomplished merely by repeating the procedure followed several months ago.

Concerning the immediate problem of safety to the workmen during construction, you state that this "is a responsibility which has been definitely assumed by the contractor," and we infer from this statement that you take the position that this problem cannot be discussed. It is my view that because of circumstance beyond our control, and which are now more than ever apparent, this problem is a mutual one and cannot be separated from the more general problems relating to design, geology and methods of construction. Indeed, developments during the progress of the work have demonstrated the necessity of introducing construction of permanent character which was not contemplated and could not have been contemplated at the time the contract was undertaken. The responsibility for these changes—affecting, as they do, not only the immediate progress of the work but also the permanent structure—is, in my opinion, a matter jointly concerning both the contractor and the District.

Emphasizing this problem, we are in receipt of instructions from the Industrial Accident Commission of the State of California ordering us to "stop further driving of both tunnels until such time as future plans for driving are approved by the Industrial Accident Commis-

(Testimony of Stephen Davidson Bechtel.)

sion." This order is based upon the declaration that it is made "due to the character of the ground through which the Broadway Low Level Tunnels are being driven". Under the circumstances, unless some agreement concerning the practical problem of determining future action in this connection can be reached, I cannot see what, if anything, will be accomplished by the limited discussion which you have indicated you are willing to undertake.

Finally, your letter states specifically that any discussions "must not include any discussion of the contractual obligations of the District or the contractor, such issues being covered entirely by the contract, and in case of a dispute between the parties can only be determined by a Court of competent jurisdiction." As I have endeavored to indicate, practical problems—both immediate and ultimate—relating to the safety of the workmen and the safety and permanence of the completed tunnels, require full and fair discussion and determination at this time in the interests not only of the contracting parties, but of the workmen engaged in constructing the tunnels, the traveling public which may ultimately use the tunnels and the citizens of this community who have a direct and financial interest in the problems presented.

If the discussions are to be conducted within the limitations outlined in your letter, it is my

(Testimony of Stephen Davidson Bechtel.)

opinion that although they might be academically interesting, they could not in any sense accomplish any solution of our mutual problems. For instance, if it be determined after inquiry that changes in the design of the permanent structure are desirable from the point of view of ultimate safety, or that the construction cannot safely proceed, due to the character of the ground, under the plans and specifications, discussion of contractual obligations cannot be avoided.

The plain fact of the matter is that unless we can approach any discussions which may be undertaken with the idea of agreeing upon and carrying out a procedure which will solve the difficulties now presented, a further exchange of communications or the holding of further conferences will lead to no useful or practical conclusion. If you are willing to approach the matter from the point of view indicated in this letter, I can assure you that we will cooperate with you fully to arrive at some basis of mutual understanding which will allow the ultimate resumption of work in the tunnels and the completion of this contract on a basis of safety to the public, protection for the lives of the workmen and satisfaction to the Joint Highway District and Six Companies of California.

In order to facilitate any further action that may be taken, I have asked Mr. Paul St. Sure, who is known to you, to assist me in the matter,

(Testimony of Stephen Davidson Bechtel.)

and he is authorized to discuss related problems with your representatives.

Very truly yours,

SIX COMPANIES OF CALIFORNIA.

By HENRY J. KAISER,

President.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 52. Filed April 22, 1938. Walter B. Maling Clerk. By J. A. Schaertzer, Deputy Clerk. [990]

Mr. Marrin: I have a letter here, Mr. Tinning, dated January 12, 1935, addressed by Six Companies of California to Joint Highway District No. 13—rather, a copy of a letter, going back to another subject. Will it be stipulated that that is a true copy of the original, subject to your check?

Mr. Tinning: Yes, so stipulated, subject to check.

Mr. Marrin: That it was sent and received on or about that time?

Mr. Tinning: Yes.

Mr. Marrin: I would like to offer that in evidence.

(The letter was marked "Plaintiff's Exhibit No. 53.")

Mr. Marrin: This is a letter dated January 12, 1935:

(Testimony of Stephen Davidson Bechtel.)

PLAINTIFF'S EXHIBIT NO. 53

January 12, 1935.

Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Gentlemen:

Referring to the establishment of the lines and grades in connection with the tunnel excavations, your attention is invited to letter of December 26, 1934, from our Mr. T. M. Price, Project Manager, to Mr. Wallace B. Boggs, District Engineer, and the letter of reply from Mr. Boggs to this company.

We are satisfied that our view of the matter is the proper one not merely under the general practice but also under the specific provisions of the specifications and we shall take up the matter further with you at a convenient early date.

In the meantime, in order not to delay the project, we are doing such of this work as is necessary for the immediate future but we believe that when we have conferred in the matter you will reimburse us for such expenditures as

(Testimony of Stephen Davidson Bechtel.)

we shall, in the meantime, have incurred in doing this work.

Yours truly,
SIX COMPANIES OF
CALIFORNIA.
By S. D. BECHTEL,
President.

SDB:EB
cc—T. M. Price,
H. J. Kaiser,
Thelen & Marrin.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. *Deft's* Ex. No. 53. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [994]

Mr. Marrin: Now, I have here, Mr. Tinning, an original of a letter signed by Wallace B. Boggs, District Engineer, dated January 22, 1935, addressed to Six Companies of California. I assume it will be stipulated that that was the original and was sent and received about that date?

Mr. Tinning: So stipulated.

Mr. Marrin: And we may substitute a copy for the original?

I offer that in evidence.

(The letter was marked "Plaintiff's Exhibit No. 54.")

Mr. Marrin: This letter is on the letterhead of Joint Highway District No. 13, dated January 22, 1935:

(Testimony of Stephen Davidson Bechtel.)

PLAINTIFF'S EXHIBIT NO. 54

Joint Highway District No. 13
of the
State of California

Oakland, California,
January 22, 1935.

File: Broadway Tunnel.
Six Companies of California,
155 Sansome Street,
San Francisco, California.

Attention of Mr. S. D. Bechtel, President

Dear Sir:

I wish to acknowledge the receipt of your communication of January 12, 1935 with respect to engineering work connected with the establishment of lines and grades in the tunnels.

I am unable to agree with your contention that engineers from the District should perform the work which you request; the Specifications definitely provide that you should do your own engineering, of which this is a part. The District cannot approve any claim for reimbursement for expenditures made by you for engineering.

It is noted that you state you desire to discuss this matter further, presumably with the Directors of the District and I shall be very

(Testimony of Stephen Davidson Bechtel.)

pleased to arrange this meeting at the mutual convenience of both parties.

Yours very truly,

(Signed) WALLACE B. BOGGS,
District Engineer.

WBB/VE

CC

Mr. T. M. Price, Project Manager, Field Office,
Mr. Archibald B. Tinning, Attorney, Martinez.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 54. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [995]

Mr. Marrin: I have here, Mr. Tinning, a letter dated June 10, 1935, addressed by Six Companies of California, by S. D. Bechtel, President, to Joint Highway District No. 13. Will it be stipulated that that is a true copy of the original, and was sent and received at about that date?

Mr. Tinning: We will stipulate it is.

Mr. Marrin: I will offer that in evidence.

(The letter was marked "Plaintiff's Exhibit No. 55.")

Mr. Marrin: This letter is dated June 10, 1935, addressed to: "The Board of Directors, Joint Highway District No. 13 of the State of California, 1448 Webster Street, Oakland, California.

(Testimony of Stephen Davidson Bechtel.)

PLAINTIFF'S EXHIBIT NO. 55

June 10th, 1935.

The Board of Directors,
Joint Highway District No. 13
of the State of California,
1448 Webster Street,
Oakland, California.

Dear Sirs:

In connection with performance of our contract with you for construction of the Broadway Low Level Tunnel, we have heretofore discussed with your Chief Engineer, Mr. Boggs, and with your attorney, Mr. Tinning, the matter of performance of engineering work.

Since the beginning of the work and at the present time we are performing certain engigineering work which is necessary for the proper construction of the project, and which we believe to be work which the District is obligated to do rather than ourselves under the terms of the contract and specifications covering the job.

Up to the present time we have done this work although protesting that it should be done by the District, and that the doing of same was not a part of our obligation. We have done

(Testimony of Stephen Davidson Bechtel.)

this in order that the job might continue without a shut-down, and are continuing to do same although we contend we are not obligated to do it.

At this time we desire to notify your District that we have done and are doing this work under protest, and that we shall and do hold you responsible for the doing of same and the results thereof, and for the cost of same.

In this connection it is our contention that it is the obligation of the District to furnish all necessary engineering to enable us to proceed with the performance of our contract, and that up to this time the District has not furnished such engineering.

Any engineering furnished by us which we believe should be furnished by the District has been so furnished by us without any recognition on our part of an obligation to furnish same; and to such extent as we may hereafter furnish any such engineering, this will advise you that we will do so under protest, if we do so at all, and will further advise you that we shall and do hold the District responsible for the results of any engineering so furnished by us which we contend the District is obligated to furnish,

(Testimony of Stephen Davidson Bechtel.)

and will further hold you responsible for the cost of same to us.

Very truly yours,

SIX COMPANIES OF CALIFORNIA.

By S. D. BECHTEL,

President.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 55. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [996]

Mr. Marrin: I have here, Mr. Tinning, an original of a letter from Joint Highway District No. 13, by Harry M. Stow, Secretary, dated July 12, 1935, addressed to Six Companies of California. Will it be stipulated that that is the original, and was sent and received at about that time?

Mr. Tinning: Yes.

Mr. Marrin: And no objection to offering a copy in evidence?

I will offer that in evidence.

(The letter was marked "Plaintiff's Exhibit No. 56.")

Mr. Marrin: This letter is dated July 12, 1935, addressed to Six Companies of California, 155 Sansome Street, San Francisco, California, and reads as follows: [997]

(Testimony of Stephen Davidson Bechtel.)

PLAINTIFF'S EXHIBIT No. 56

Joint Highway District No. 13
of the State of California

Oakland, California
July 12, 1935

Six Companies of California,
155 Sansome Street,
San Francisco, California.

Attention Mr. S. D. Bechtel, President

Gentlemen:

The Board of Directors of Joint Highway District No. 13 has directed me to advise you that your letter of June 10, 1935 respecting the performance of engineering work by the District rather than yourselves, has been given full consideration.

The Board of Directors has concluded that the engineering work performed by the District Engineer is fully in accordance with the terms of the contract and the plans and specifications covering the work. The Board also is of the opinion that your purported protest and demand that the District provide engineering service for you, in addition to that which has been provided since the commencement of your work under the contract, and is now being provided, is not well-founded, and that your statement that you will hold the District respon-

(Testimony of Stephen Davidson Bechtel.)

sible for the cost of engineering and the results thereof, is not justified in law or in fact.

You are further advised that this District and its employees will continue in the future to assist and cooperate with you toward the successful completion of the project you undertook to construct under your contract of June 4, 1934. This District, however, does not contemplate deviating from the spirit or letter of the contract and the plans and specifications under which the work is being done, and expects you to proceed under the contract in accordance with law.

Yours very truly,
JOINT HIGHWAY DISTRICT No. 13
OF THE STATE OF CALIFORNIA
By (Signed) HARRY M. STOW
Secretary

HMS:EK

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 56. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Marrin: I have here a copy of a letter signed by Six Companies of California, by S. D. Bechtel, President, addressed to the Board of Directors, Joint Highway District No. 13 of the State of California, dated July 26, 1935,—addressed to the

(Testimony of Stephen Davidson Bechtel.)

Board of [998] Directors; and that is dealing with engineering.

Mr. Tinning: We will stipulate to that.

Mr. Marrin: You will stipulate that that is a true copy. We will offer that in evidence.

(The letter was marked "Plaintiff's Exhibit No. 57.")

Mr. Marrin: This is a letter dated July 26, 1935, addressed to the Board of Directors, Joint Highway District No. 13 of the State of California, 1448 Webster Street, Oakland, California. It reads:

PLAINTIFF'S EXHIBIT No. 57

July 26th, 1935

Board of Directors,
Joint Highway District No. 13
of the State of California,
1448 Webster Street,
Oakland, California.

Dear Sirs:

Under date of June 10th, 1935, we directed a letter to you concerning the doing of the engineering work in the construction of the Broadway Low Level Tunnel, to which letter we direct your attention. Under date of July 12th, 1935, you made reply to this letter, which has had our consideration.

Before we wrote the letter of June 10th, above mentioned, we had frequently contended to your Engineer and your attorney for the

(Testimony of Stephen Davidson Bechtel.)

position which we asserted in that letter, and we continued to contend for the same position that the contract and specifications provide for the doing of engineering work by the District which has been done by us as noted in our letter of June 10th. You take the opposite view. We believe our position is correct and that a difference of opinion has arisen which should be settled. We are sincere in our contentions and we assume that your views are likewise sincere. Therefore, the difference of opinion or dispute as to the true meaning of the contract and specifications raises a question concerning which both you and ourselves should welcome a determination.

Under the circumstances, we believe that the question at issue should be submitted to arbitration; and that both of us should agree to abide by the result of such arbitration. Accordingly, we are writing this letter to suggest to you that the question involved be submitted for final decision and determination to arbitration.

In the event our proposal is acceptable we suggest that an agreement for submission to arbitration be immediately arranged between us. Such agreement should provide in general for

(a) naming of three arbitrators if we can agree on their names; otherwise it should provide for selection of arbitrators, one to be

(Testimony of Stephen Davidson Bechtel.)

named by you, one by us, and one by the two thus named;

(b) manner of presentation to the arbitrators, including provisions for time limitations within which hearings should be held and decision made;

(c) payment of expenses of the arbitration.

The questions which we suggest should be submitted to the arbitrators would be stated in such agreement for arbitration, and in our opinion should be stated substantially in the following form:

First: What are the obligations of the District and the contractor respectively under the contract and specifications for the construction of the Broadway Low Level Tunnel for the doing of any and all engineering work necessary to the performance and completion of the contract;

Second: Has the District done and furnished to the contractor since the commencement of performance of the contract for the construction of the Broadway Low Level Tunnel all of the engineering which it is obligated to furnish under the terms and provisions of the contract and specification covering the work;

Third: If it be found that the District has not furnished all of the engineering which it is obligated to furnish, what has been the extent of its failure in this respect, and what has been

(Testimony of Stephen Davidson Bechtel.)

the cost to the contractor for furnishing same;

Fourth: If it be found that the contractor has been doing and furnishing engineering work which should have been done and furnished by the District, responsibility for the same and the results thereof shall be determined as being upon the District, and the District shall likewise be held liable to pay to the contractor the cost to which it has been put as found by the arbitrators for doing and furnishing such engineering work.

Any award or decision of the arbitrators should be made binding upon both parties for the remainder of the life of the contract.

We trust you will be able to approve of the above program in order that the controversy now existing on the subject may be settled. We believe arbitration to be the preferable method of settling same as it can be quickly consummated and the expense thereof will not be prohibitive.

In the event that you are unwilling to submit the matter to arbitration, we will expect to immediately commence such legal proceedings as may be necessary or proper to determine our rights in the matter.

In order that a speedy settlement may be reached, we ask that you reply to this letter by August 7th, 1935. If we do not receive an affirmative answer by that date, we will consider

(Testimony of Stephen Davidson Bechtel.)

that you do not care to arbitrate the matter and commence such legal proceedings as may be proper, as above suggested.

Very truly yours,

SIX COMPANIES OF CALIFORNIA

By S. D. BECHTEL

S. D. Bechtel, President

cc—W. B. Boggs

cc—A. B. Tinning,

cc—T. M. Price.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 57; Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer. Deputy Clerk. [999]

Mr. Marrin: You may cross-examine.

The Court: It is Friday afternoon; if you are not prepared to proceed with your cross-examination, we can adjourn at this time.

Mr. Tinning: My theory on that, your Honor, is we could save time. I was not aware, of course, who was going to follow Mr. Larson. We have quite a lot of documents that I would like to get in order.

The Court: We will take an adjournment until next Tuesday morning at ten o'clock.

(Thereupon, an adjournment was taken until Tuesday, April 26, 1938; 10 o'clock A. M. [1001]

(Testimony of Stephen Davidson Bechtel.)

Tuesday, April 26, 1938;
10:00 o'clock A. M.

STEPHEN DAVIDSON BECHTEL,

Cross Examination

Mr. Tinning: If the Court please, we have a diagram or perspective drawing of the region of San Francisco Bay and the project of the District, which is drawn to perspective and was prepared from one of the architectural drawings that were used in connection with the proceedings in the formation of the District. This diagram is simply offered for the purpose of illustrating the testimony; it is not to scale; and it shows, between the points that I indicate on the east of the tunnel, generally, the extent of the District project, as marked in yellow; the highway is shown; the east portal building is shown; the east side of the hills; the west portal building; and the cut being generally shown; the west side of the hills; and then the highway leading down to Broadway in Oakland to the point where the yellow stops; that is the westerly termination of the District project, and to the cross or intersecting road known as the Landale Connection,—or whatever that short-cut from Berkeley is called,—across the main access of the project to East Oakland, known as the Landvale-Berkeley Connection.

For the purpose of some questions that I have in mind of the witness, I would like to offer that as

(Testimony of Stephen Davidson Bechtel.)

defendant's exhibit in proper order; and I understand there is no objection to it being put in for diagrammatic purposes to illustrate the testimony.

Mr. Marrin: No objection.

Mr. Wittschen: Mr. Tinning, from the distance here, I am sure the Court cannot see where the tunnels are.

Mr. Tinning: The dotted line—this being a perspective view, your Honor, of the country, the dotted line has been used to [1002] indicate the places where the tunnels are constructed between the west portal and east portal, running through under the hills. There is a dotted line above, higher up, which is intended to indicate the position of the Old Highway Tunnel, to which there has been some reference in the testimony, and the road which is shown by a white line meandering around the contour of the hills—and I am indicating from the west portal of the Old Tunnel down to the easterly boundary of Berkeley is what is known as the Old Tunnel Road.

(The diagram was marked "Defendant's Exhibit P.")

[Set forth in the Book of Exhibits at page 370.]

Mr. Tinning: Q. Mr. Bechtel, I understood from your testimony on last Friday that you resided in Oakland. Is that correct? A. Yes.

Q. How long have you lived in Oakland?

A. Off and on since 1912.

Q. You are familiar and have been familiar with

timony of Stephen Davidson Bechtel.)

Contra Costa-Alameda County hills, through h the tunnel was built, for a great many years?

I have known they are there.

Well, I suppose, on occasions, you have ac- y crossed over them?

Yes, I have crossed over them.

And gone through the Old Tunnel?

Yes.

How long were you a member of the firm of . Bechtel Company before the formation of the tiff Six Companies of California?

Since its organization.

When was that? A. I believe, in 1925.

When did you first engage in the contracting ness? From 1925—is that the time you started lly working as a contractor—is that correct?

No. I started immediately on getting out of ol, or before I got out of school.

When was that?

Well, it goes back to probably 1912; having raised in construction camps, and having spent tically all my life, since then, either in construc- camps, around [1003] construction, or in the y, or in school.

This experience goes back to 1912—Was it that you have had experience in charge of or in ection with the work of driving tunnels?

Yes.

What tunnels have you actively been engaged orking on, prior to taking over the work of

(Testimony of Stephen Davidson Bechtel.)

preparing the bid for the Broadway Low Level Tunnel?

A. The Southern Pacific Company's Coram Tunnel near Redding.

Q. About what year was that?

A. About 1924 or 5.

Q. What kind of a tunnel was that?

A. Railroad tunnel that had burned out, caved in; and our contract was for the removing of the caved-in materials, and lining the same and restoring same to traffic.

Q. Prior to the fire, had it been a timber lined tunnel?

A. I think, at least in part.

Q. What kind of a lining did you restore?

A. Concrete.

Q. Did you employ a timbering operation?

A. Temporary timbering.

Q. Temporary timbering before you placed the concrete? A. In part.

Q. Did you leave the timber in behind the concrete? A. I believe so.

Q. Following your experience, about 1924, in the Coram Tunnel, what was your next tunnel experience?

A. Well, I believe, before that, that while I was still in school,—still in college,—I had worked on the Plumas County Tunnels of the Great Western Power Company; that was probably in 1922 or '23.

(Testimony of Stephen Davidson Bechtel.)

Q. The Western Pacific Tunnels in Plumas County?

A. I mean Great Western Power Company.

Q. Great Western Power Company?

A. Yes.

Q. Those were how large?

A. 10 or 12 feet in diameter, and some 5 or 6 miles in length.

Q. Those were driven through the Sierras?

A. Yes; they were in the Sierra Nevada Mountains.

Q. Hard rock tunnels? A. In part. [1004]

Q. Was there some heavy, heaving ground, soft materials, in those tunnels?

A. Not in the portion that we built.

Q. The Coram Tunnel that you referred to: did that present the same problems,—driving through hard rock or soft materials? A. Both.

Q. So, you had materials to cut through that were not self-supporting and materials that were, in the same tunnel? A. As I recall.

Q. In what capacity were you employed on the Coram Tunnel work?

A. Well, it was what you might call resident partner. I was participating in the company, or in my father's business; it was carried on as an individual, and I was a junior partner.

Q. You had an interest in the operation?

A. Yes.

Q. Following the Coram Tunnel operation, what was your next experience in tunnel work?

(Testimony of Stephen Davidson Bechtel.)

A. I believe it was the Southern Pacific American Canyon double tracking, which was about 1925; somewhere around there; and it consisted of—I presume you want me to give the same information on that tunnel?

Q. Yes, just generally.

A. That consisted of concreting, under traffic, a railroad tunnel.

Q. That was in the Sierras?

A. In the Sierras.

Q. What was your next experience after that?

A. In 1926, I was in Oregon, again as resident partner up to the time we were organized, but it was not organized as "resident partner"; it consisted of concrete lining and timbering and retimbering of eight tunnels on the Cascade Line of the Southern Pacific.

Q. Then, following that experience in 1926, what did you do next in connection with tunnel work?

A. Well, next to this same operation, I was also in charge for our company of the handling of the Chicago Pneumatic placing equipment; that is a concrete gun,— [1005] predecessor, I believe, one might call it, to the Hackley gun; and which we handled, and represented the Chicago firm on the Pacific Coast; and I handled that business in our office.

Q. In handling that business, did you have to do with the problem of placing concrete in linings in tunnels?

(Testimony of Stephen Davidson Bechtel.)

A. Well, we were licensees, Western representatives and sole licensee, and issued sub-licenses to the various users of the Pneumatic gun.

Q. In your work, did you come in contact with the problems of the actual men who were using this equipment in placing concrete in tunnel linings?

A. Very indirectly, Mr. Tinning.

Q. Following that work in connection with the Southern Pacific Tunnels in the Sierras Nevadas, what was your next experience with tunnels?

A. Well, probably my next direct contact was at Boulder Dam, at which point I was on the Executive Committee of the Board of Directors, and was directly in charge of the procuring of equipment, materials and supplies for the entire project, including the tunnel portions, and, as such, reviewed with the other members of the Executive Committee, —all of whom were Directors,—the matters of planning and equipping the Boulder Dam Tunnels.

Q. Those tunnels were how large, Mr. Bechtel?

A. The finished diameter was approximately 50 feet.

Q. The excavation, outside the permanent lining?

A. Minimum of approximately 56 feet in diameter.

Q. So that the lining was how thick?

A. I would say an average of approximately 3 feet.

Q. Concrete lined? A. Yes.

Q. How high were the tunnels?

(Testimony of Stephen Davidson Bechtel.)

A. They were circular; 56 feet high and 56 feet wide, before lining, approximately.

Q. Well, were those tunnels, throughout, circular?

A. Practically throughout, except a slight transition period where the spillway [1006] overflowed, came into the tunnel; but the main bodies of the tunnels proper were circular.

Q. Were those tunnels driven by the full face method, with the Jumbos and drifters?

A. In major part.

Q. Did they require timbering?

A. Very little, if any.

Q. Was the timber left in behind the concrete?

A. There was very little timbering placed, so it could not have been left in.

Q. How many lineal feet of those tunnels was that?

A. As I recollect, approximately 4 tunnels; and they were approximately 4000 feet long, each; that is an approximation.

Q. Those were driven in a hard rock of the type of the mountain, or high mountain rock, were they not? A. Not necessarily.

Q. Well, I am asking you whether they were or not, Mr. Bechtel.

A. Will you repeat the question?

The Court: Read the question.

(Pending question read by the reporter.)

The Witness: A. In part.

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: Q. Is there any soft ground in the Boulder Tunnel—Boulder Dam Tunnels?

A. Very little.

Q. And the formation was quite different from anything encountered here in the Coast Range Mountains in the vicinity of San Francisco Bay?

A. Generally speaking, yes.

Q. Mr. Bechtel, I call your attention to Thursday, the 15th day of September, 1932, and ask you if you recollect a visit to the office of Wallace B. Boggs, District Engineer of the defendant Joint Highway District, at its office at 1448 Webster Street, in Oakland, California, at which time your father, —W. A. Bechtel, —yourself, your brother Warren Bechtel, Junior, J. B. Shaw of the W. A. Bechtel Company, visited that office and had a conference or a conversation with Mr. Boggs, at which time the District Assistant Engineer, [1007] Joseph Barkley, was present—Do you remember that incident? A. No.

Q. Shortly after Mr. Boggs was appointed District Engineer, after Mr. George Posey's death?

A. Might I——

Q. Well, do you remember the incident, Mr. Bechtel?

A. Yes, except as of a specific date, Mr. Tinning; I have no recollection of a specific date; but that is—When I say that, that is the reason. You asked whether I remember a specific date.

(Testimony of Stephen Davidson Bechtel.)

The Court: Q. Do you recall a meeting, with those men present that he has enumerated, at any time?

A. I recall a meeting and discussion with Mr. Boggs.

Q. When was that, as near as you recall?

A. During 1932.

Q. Who was present at that meeting?

A. My father, my brother, —W. A. Bechtel, Junior, —Joseph Shaw, myself, and, to the best of my recollection, Mr. Wallace Boggs, only.

Q. Was that the first meeting you had with him?

A. To the best of my recollection.

The Court: Proceed.

Mr. Tinning: Q. You went over there to discuss with Mr. Boggs the type of tunnel, the general plans that he might have for the construction of this project for which he had just been employed as District Engineer?

Mr. Marrin: We object to any evidence of this conversation, on the ground it is incompetent, irrelevant and immaterial, and it is too remote in time; it is not binding on this plaintiff. The evidence shows that this plaintiff was not organized until May 15, 1934; and an attempt is being made to bring out here evidence of a conversation which occurred more than a year and a half prior to that time.

Mr. Alexander: I join in the objection. [1008]

Mr. Wittschen: I will state, if the Court please,

(Testimony of Stephen Davidson Bechtel.)

we will tie it right in to this witness's testimony wherein he said he relied upon the estimate of Mr. Larson and Mr. Larson's interpretation of the geological report; and we will show a conversation with the late Mr. Bechtel,—the witness's father,—relating to the original construction of this tunnel, and his knowledge; and, of course, the witness's knowledge of conditions, because the witness was present.

Mr. Marrin: I would like to state the further ground of the objection is that at the time there had been no call for bids for this project, no showing that there was any definite project or that the plans and specifications had been prepared, or that there had been any call for bids or any public request for this contract at all.

Mr. Wittschen: If we can show a knowledge of conditions in 1932, certainly that knowledge ran through to 1934. The fact the company was not organized is immaterial. These people put in all sorts of evidence to the effect that, before the company was organized, Mr. Larson was working for Mr. Bechtel.

Mr. Marrin: All of that evidence related to matters which occurred after the first call for bids and after they got the plans and specifications that were issued by the defendant in connection with the particular project.

Mr. Wittschen: We offer to prove the knowledge of the witness of the conditions under which the

(Testimony of Stephen Davidson Bechtel.)

tunnel would be driven and which he knew before the bid was made.

The Court: The Court will allow it for the limited purpose of the offer.

Mr. Marrin: Exception.

Mr. Alexander: Exception.

Mr. Tinning: Q. At that time and place, Mr. Bechtel, did you hear your father state to Mr. Boggs and the people present that, [1009] in his opinion, a large tunnel bore through the Alameda-Contra Costa County Tunnel, at the point where the tunnel was proposed to be constructed, would present many hazards?

A. I have no such recollection, and I do not believe it was said.

Q. Did you further hear him state, in this conversation, that often smaller bores would encounter trouble sections, particularly if swelling ground were encountered?

A. I have no recollection, and I don't believe he said that.

Q. Did you hear your father state, in that conversation, that he did not like arch inverts in tunnels of small sections, except where they sometimes were necessary to hold a rising floor?

A. I have no such recollection, and I do not believe he said that.

Q. Did you also hear, in that conversation, Mr. Bechtel, your father state that, in his opinion, the bid price of the twin bore tunnels of small sections

(Testimony of Stephen Davidson Bechtel.)

would be lower than the bid price for a larger single bore tunnel, even though the quantity of excavation and concrete for both types of tunnel would be equal?

A. I have no such recollection. I do not believe he could have said that.

Q. In the same conversation, did you hear your father state that he would not want to bid at all on a larger section, because of his knowledge of the hill through which the tunnel would be driven?

A. May I have that question?

Mr. Tinning: Read the question, please.

(Pending question read by the reporter.)

The Witness: A. No.

Mr. Tinning: Q. Did you, on that occasion, hear your father state that he did not think that a pioneer or exploration bore was necessary, or that the same would be of any particular advantage except for the purpose of determining which type of tunnel bore [1010] should be used?

A. No; and I don't think he said that.

Q. What did he say, at that conversation, Mr. Bechtel?

A. I have no recollection of what he said.

Q. Your only recollection is that you were present some time in 1932, at Mr. Bogg's office, and that office is the same office where the District is now domiciled over on Webster Street; that is the only thing you recollect about it?

(Testimony of Stephen Davidson Bechtel.)

A. No; I have some recollection of that discussion.

Q. Well, what was said at that time and place?

A. Not that clear a recollection of what was said; but the discussion that was of a preliminary nature only. We went there for the purpose of asking whether there was going to be a tunnel construction contract available. Our general interest in such things—and we were interested in various projects, wherever they might be; and there were no plans or specifications. I, personally, had never been on the job site, and I don't think my father or brother had been to the job site; and it was of a preliminary nature of the kind a contractor makes, or engineer would make, in thinking of a prospective project some time in the future.

Q. And, in thinking of the prospective project some time in the future, at that time you knew that Mr. Boggs had just come on the work as District Engineer, Mr. Posey having died in August, 1932?

A. I did not know that.

Q. Will you repeat what was said at that conversation, so well as you can, saying what was said by you and your father and Mr. Boggs?

A. Mr. Tinning, I tell you I don't recollect what was said.

Q. You don't recall that? A. No.

Q. In 1933, did the W. A. Bechtel Company subscribe to the Western Construction News?

A. I presume that it did.

(Testimony of Stephen Davidson Bechtel.)

Q. You said you had gone to Mr. Bogg's office for the purpose of finding out that work that might be coming up. Do you recollect [1011] reading the article, in July, 1933, in the Western Construction News, describing the project?

A. I have no such recollection. [1012]

Q. Do you remember reading the matter on page ——

Mr. Marrin: I object to your reading the article in evidence. You can show him the article and ask him if he read it. If he has not read it I object to it being read into the record.

Mr. Wittschen: I think we have a right to offer it, because he has not said he is not a subscriber to the Western Construction News. I am satisfied if the witness said he was a subscriber that we have a right to introduce the article.

Mr. Marrin: That is not the point. He has not seen the article, and I object to the article being read in evidence in this case, or into the record, until it is offered.

Mr. Tinning: I do not understand that the witness testified that he has not seen it, he said he did not remember it.

Mr. Marrin: I would like you to develop it, and when you offer it I would like it offered before you read it, so that I may have a chance to object to it.

Mr. Tinning: I am not asking you whether you saw it at that time, I am asking whether you see it right now.

(Testimony of Stephen Davidson Bechtel.)

A. I see it right now. However, I will state that——

Q. Just a minute, I have not asked you any question yet. Isn't it a fact that in 1933, following the publication of this article, that you saw it?

A. I have seen it this morning.

Q. Will you read the question, Mr. Reporter?

(Question repeated by the reporter.)

A. No.

Q. Do you have any recollection of having read this article or the portions thereof which I will now read to you——

Mr. Marrin: That is my objection, to his reading the article.

The Court: I will allow him to make a record. Let us proceed in the regular way. Let him conclude the question and it will be [1013] time enough then to object.

Mr. Tinning: Q. (Continuing) Reading from page 318 of the issue of July, 1933, Western Construction News and Highway Builder:

> "Both tunnel sections will be 35 feet out to out in excavation and 34 feet high. A reinforced concrete lining will be placed throughout, varying from 2 feet thick at the crown of the arch to 5 feet at the haunch. The tunnel is expected to require support for practically the entire length of each bore, and the contractor will be allowed to place either timber sets and lagging or steel ribs and liner plates back of the con-

(Testimony of Stephen Davidson Bechtel.)

crete. Where practicable, the upper part of the arch is to be poured last, so as to key the tunnel structure. Concrete specifications are based upon cement content and slump."

"Two types of tunnel are provided in the design: Type 'A', with no invert, the walls coming down to spread footings on rock and the 8-inch Portland cement concrete pavement resting directly on the excavated sub-grade; and type 'B', carrying an invert, for use, if ground conditions are unfavorable."

A. No, I have no recollection of ever having read them.

Mr. Tinning: We will offer them in evidence, if your Honor please.

Mr. Marrin: To which we object on the ground they are immaterial, irrelevant and incompetent, and on the further ground that they are hearsay.

Mr. Alexander: We join in the objection.

Mr. Wittschen: In that connection, this is an engineering publication that is published in San Francisco, and he has not said that his firm were not subscribers, in fact, he has practically admitted that they were, anything as notorious as that about this [1014] project, is admissible as general knowledge.

Mr. Marrin: This witness has testified he has not seen or read the article and it is simply a newspaper article.

The Court: At this time the Court will sustain

(Testimony of Stephen Davidson Bechtel.)

the objection on the ground the foundation has not been laid.

Mr. Tinning: Q. Isn't it a fact that the W. A. Bechtel Company was a subscriber to the Western Construction News and Highway Builder in the month of July, 1933?

A. I believe that it was, Mr. Tinning, I am not sure, but I presume that it was.

Q. Didn't you have copies of this engineering publication in your office and keep them there?

A. Some publications.

Q. How about the Western Construction News and Highway Builder?

A. Well, I presume that if we were subscribers at that time it probably was in the office and probably was kept there.

Q. Then my understanding is that you, yourself, have no knowledge of whether it was there, you simply presume that it was?

A. I presume that we were subscribers at that time.

Mr. Tinning: We make the offer again, your Honor.

Mr. Marrin: I will renew the objection, and the further ground that no proper foundation has been laid.

Mr. Alexander: The same objection for the Surety Companies.

The Court: At this time the Court will sustain the objection on the ground heretofore stated.

(Testimony of Stephen Davidson Bechtel.)

Mr. Wittschen: Exception.

Mr. Tinning: Mr. Marrin, I will show you a copy of a letter dated July 20, 1934, from Six Companies of California to Wallace B. Boggs, District Engineer, and I assume that under the understanding we have previously had I may introduce a copy rather than the original, subject to check.

Mr. Marrin: Surely.

Mr. Tinning: If your Honor please, we offer in evidence the [1015] letter referred to, dated July 20, 1934, from Six Companies of California, signed S. D. Bechtel, President, to Wallace B. Boggs, District Engineer, as Defendant's Exhibit in proper order.

The Court: It may be admitted and marked.

(The letter was marked

"DEFENDANT'S EXHIBIT Q.")

Mr. Tinning: The letter reads as follows:

"Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
Oakland, California.

"Dear Mr. Boggs:

"We wish to advise you of the organization we are using in the field for the construction of Broadway Tunnel.

"W. R. Fontaine is in complete charge of all field operations.

"L. M. Larsen is superintendent in charge of tunnel operations.

(Testimony of Stephen Davidson Bechtel.)

"J. F. Barber is superintendent in charge of outside and subcontracted operations.

"Yours very truly,
SIX COMPANIES OF CALIFORNIA
By (Signed) S. D. BECHTEL,
President."

Q. Referring now to Defendant's Exhibit N, Schedule of Progress submitted on August 9, 1934, showing the work of excavation at the west portal which commenced on July 20, 1934, Mr. Bechtel, so that you may have this before you I will show you a copy of what is Defendant's Exhibit N in the case, and ask you if this is a construction schedule that was presented by Six Companies to the District with its letter of August 9, 1934, that is already in evidence? A. Yes.

Q. And I will ask you if at that time didn't your proposed construction schedule show that you proposed to commence the construction at the west portal on the 15th of July, 1934?

A. Well, I think it shows whatever we were thinking of at that time. [1016]

Q. Will you look at it, please, and see if it is not a fact that it does show that?

A. It shows about the 20th.

Q. The 20th?

A. Yes, the 20th of July, 1934.

Q. From this schedule, which is already in evidence as Defendant's Exhibit N, it is true, is it not, Mr. Bechtel, that prior to the time that this schedule

(Testimony of Stephen Davidson Bechtel.)

was submitted on the 9th of August, 1934, that there already had been slides in the west portal cut area?

A. I don't recall whether there had been or had not been at that time.

Q. You don't recall that? A. No.

Q. You don't recall that as early as July 13 there had been slides in that area? A. No.

Q. You don't recall that the plaintiff in this case, the Six Companies of California, had made any written complaints to the District at this time that it had been deceived by the geological report or deceived by the condition which it had actually encountered there?

A. Would you read that question?

(Question repeated by the reporter.)

I do not recall that.

Q. Well, you have been over the records of the company. Did you find anything or do you know now of any written complaint that was made by the Six Companies to the District at this time, August 1, 1934, or at the time that the schedule was submitted on the 9th of August, 1934, where Six Companies contended in writing that it had been deceived or misled?

A. Well, I probably had better say I have not been over all of the records of the company, Mr. Tinning.

Q. Do you know of any complaints that were made?

A. I can't remember at this time.

(Testimony of Stephen Davidson Bechtel.)

Q. You have no recollection? A. No.

Q. Was there any demand made for extra compensation for the slides [1017] at the west portal of the tunnel at this time?

A. At that date?

Q. Yes.

A. I have no recollection on that subject.

Q. Isn't it a fact, Mr. Bechtel, that the work on this west portal, the open cut, the west portal cut, the foundation walls and the construction of the building was sub-contracted by Six Companies of California to subcontractors very shortly after Six Companies entered into this contract with the district?

A. You are speaking about the building, the excavation for it?

Q. The building and the excavation for the westerly portal cut, both? A. Yes, in part.

Q. Will you explain?

A. The portal buildings were subcontracted; the grading was subcontracted in general, and that subcontract for grading was slightly modified thereafter.

Q. Do I understand when you say the grading, that you are referring to the grade of the project from Broadway up to the west portal and from the east portal to the east end of the project?

A. It was intended to subcontract all outside excavation there.

(Testimony of Stephen Davidson Bechtel.)

Q. Was that done shortly after you took the contract? A. Yes.

Q. So that at the time that work started at the west portal cut the work was being done by subcontractors? A. Yes.

Q. Of your own selection? A. Yes.

Q. And the manner and the order in which they proceeded was a matter which had been determined by Six Companies in the contract which it had made with the subcontractors?

A. Substantially, yes.

Q. Any interference with the tunnel-driving operations of the Six Companies was due to the subcontractors' operations at the west portal, was it not, at the time? A. In part.

Q. It was true, was it not, that you had to stop work on the attempt to get underground in the tunnel which was started about the [1018] 6th of August, because one of the contractors, K. E. Parker, protested that you were interfering with their work under their contract?

A. No, I think you are confused on that, Mr. Tinning. It is my recollection that the schedule of that work and the work, itself, as of such a nature and had to be carried on in such a fashion that certain parts could not be carried on simultaneously, and at our suggestion certain parts of the several subcontractors' work were delayed to correlate and to synchronize, so that we could make the maximum speed possible.

(Testimony of Stephen Davidson Bechtel.)

Q. Mr. Bechtel, isn't it a fact that the efforts to go underground made by Six Companies who had not subcontracted the tunel driving were stopped from August 3 to August 23 while the K. E. Parker Company was permitted to go ahead in the construction of the foundation work under the building? A. I don't remember that.

Q. So that any interference that resulted to the Six Companies from their attempt to start the driving of this tunnel was the result of subcontractors being there, was due to the fact that Six Companies had brought subcontractors there?

A. In part.

Q. What do you mean by in part?

A. Well, as any construction project goes ahead there must be a certain synchronization of the operations, and particularly in starting an underground tunnel, when it is in a cut of that kind, that is what I mean when I say in part.

Q. There was no synchronization during the period of twenty days, approximately, that the work was held up from going underground, was there?

A. I am speaking of it in general from the time we started the excavation of the portal, the excavation for the building, up to and including the final completion of the building.

Q. I am speaking specifically with respect to the work in this case, the work was shut down from about August 3 to August 23, driving [1019] underground, getting started in the tunnel underground,

(Testimony of Stephen Davidson Bechtel.)

because your subcontractor, K. E. Parker, was in the way: that is a fact, is it not?

A. I would not say so. As I say, my recollection of dates and sequence of operations is not clear, is not specific, I could not recall particular dates.

Q. You have not a distinct recollection of the sequence? A. That is right.

Q. You would not say that was not true, that you were held up between August 3 and August 23 by reason of the fact that you ceased work while K. E. Parker Company had got the foundations in?

A. No, but the constant effort of the Six Companies of California was to bring about a condition of complete installation and operations to expedite the tunnel construction as far as possible at all times, and that had to be synchronized and correlated with the other parts of the work, approach excavation, the construction of the portal building, and other operations.

The Court: Were you familiar with this work during this period? A. Yes.

Q. Was there any delay in that period?

A. Yes, there was delay.

Q. What was that delay caused by?

A. By the nature of the work.

Q. His question indicates that you sublet the contract to the approaches up to the face of the tunnel, is that correct? A. It is.

(Testimony of Stephen Davidson Bechtel.)

Q. In that event there were subcontractors there?

A. Yes.

Q. And delay caused in the tunnel? A. Yes.

Q. Counsel is trying to check the delay of 20 days, are you familiar with that? A. No.

Q. What were you doing during that time?

A. I was there from time to time; I do not recall the sequence of events.

Q. You have no recollection of it, at all?

A. Not of the dates. [1020]

Q. They have here a schedule of the progress of the work, are you familiar with that?

A. I recall their schedule.

Q. I suppose it is not only their schedule, but both sides.

Mr. Tinning: That is a schedule submitted by the Six Companies of California, the plaintiff in this case, on the 9th of August, 1934.

The Court: I am anxious to make headway. I have seen too much going on—if this case is going to be presented on the merits you had better get to the question at issue. You were there on the work, what was th situation?

A. Well, you say I was on the work. I was President of the Six Companies, I was there occasionally, several times a week, practically, throughout the entire construction.

Q. You were familiar with your own records, weren't you? A. Yes.

The Court: What is this record?

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: That is a proposed schedule. Mr. Larson testified that they were shut down from the 3rd of August to the 23rd of August because of interference with the work of K. E. Parker, and that they did no tunnel driving during that period.

The Court: What is your knowledge?

A. There was interference with the tunnel construction, that is correct.

Q. Who was it caused it?

A. Partly K. E. Parker, and partly McKinley & Crowell, and partly our own operations.

Q. Was that the interference that caused the delay in the bore of that tunnel? A. Yes.

Q. What delay did it cause?

A. Mr. Tinning said it was a period of approximately 20 days.

Q. I am not concerned with what he said. I want your knowledge. You are the witness on the stand now. What is your knowledge?

A. I have no clear recollection of the delay involved there. [1021]

Mr. Tinning: Q. I show you a letter dated September 25, 1934, from Six Companies of California to Mr. Wallace B. Boggs, District Engineer, which I propose to offer in evidence under the understanding that we will produce copies subject to check.

Mr. Marrin: No objection.

Mr. Tinning: If your Honor please, we offer in evidence on behalf of Defendant a letter dated Sep-

(Testimony of Stephen Davidson Bechtel.)

tember 25, 1934, addressed by Six Companies of California to Wallace B. Boggs, District Engineer, Joint Highway District No. 13, Oakland, California, and ask that the same be received in evidence as Defendant's Exhibit next in order.

The Court: It may be admitted and marked.

(The letter was marked

"DEFENDANT'S EXHIBIT R.")

Mr. Tinning: I will read the letter. It is dated September 25, 1934.

"Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
Oakland, California.

"Dear Mr. Boggs:

"In the future in addressing communications to our field office with reference to the Broadway Tunnel Project, please mark them for the attention of Mr. T. M. Price, who assumed the position of Project Manager on September 20.

"Mr. W. R. Fontaine has assumed an advisory relationship in connection with the job.

"Yours very truly,
SIX COMPANIES OF
CALIFORNIA,
(Signed) S. D. BECHTEL,
President."

(Testimony of Stephen Davidson Bechtel.)

Q. Mr. Bechtel, directing your attention to the way in which the work was set up prior to September 20, 1934, following your taking the contract, it is a fact, is it not, that a railroad was constructed from the west portal down grade approximately 2500 feet along the right of way of the District from the point approximately [1022] I am pointing to on this diagram, which, as near as I can estimate, is approximately the 2500 feet that I have spoken of.

A. No. I do say that there was a dinkey track, a narrow gauge track, constructed on a down hill grade, but I do not think it is 2500 feet.

Q. Is it true that it was approximately from station 111 west to station 85?

A. I do not think it went that far.

Q. That would be subject to check with the records?

A. It may have been.

Q. It is your impression it was not quite as long as that? A. Yes.

Q. That railroad was designed to convey the tunnel muck from the mouth of the tunnel down grade and deposit it in the fill, in the highway fill, or in the dump, if it was not required for the highway fill?

A. That was the method for the purpose of transporting it down and putting it in the highway fill; I do not believe that was constructed for the dump operation.

(Testimony of Stephen Davidson Bechtel.)

Q. At any rate, it was to dispose of the material which was taken out of the tunnel?

A. Yes.

Q. There were a couple of trestles built on this railroad track, were there not, across the ravines?

A. I remember one ravine.

Q. You remember one? A. Yes.

Q. The there were some diesel locomotives supplied for this railroad? A. There was one.

Q. One Diesel and one gas?

A. There was one Diesel and one small gasoline; the gas locomotive was used to switch the cars in the tunnel face.

Q. That railroad caused considerable difficulty in operation, did it not, the trains and locomotive ran off the tracks, going down the grade?

A. I remember of that having happened a number of times.

Q. After Mr. Price came on the job he immediately began preparation [1023] for the construction of a muck bunker near the west portal and the elimination of the railroad from the west portal down to the point where it had formerly been operated?

A. The date of that I do not recall, but it was done in the forepart of the job.

Q. What is that?

A. That was done in the forepart of the job.

Q. It is a fact that it started immediately after Mr. Price got on the job? A. I do not recall.

(Testimony of Stephen Davidson Bechtel.)

Q. And that by October the method of transporting muck, or the middle of October the method of transporting muck had been changed and the material from the tunnel was hauled out of the tunnel to a point 200 or 300 feet west of the tunnel portal by the locomotives, and there dumped into a bunker, which was placed higher than the tunnel grade, and from that bunker put into trucks and carried down and put into the right of way?

A. Yes, I believe that was done, because of the different kind of material that was encountered, it was a different material than was anticipated, a different material than we originally contemplated, and furthermore, I believe that the fill at the point under the trestle you referred to was completed.

Q. Those fills were completed by the open cut subcontractor, were they not?

A. No, I do not think so. I think some tunnel muck was delivered into that.

Q. Isn't it a fact that through the month of October the only tunnel excavation that had been done was the removal of the muck or dirt from the drifts in approximately 92 feet in the south tunnel and approximately 110 feet in the north tunnel, and that the cores, the bulk of the excavation from these bores of the tunnel was not removed until after December 1, 1934?

A. I think that is correct, Mr. Tinning. If my recollection is correct there was a certain portion of the tunnel which was constructed by an open

(Testimony of Stephen Davidson Bechtel.)

cut [1024] excavation in the case of the portal building, a small distance away from the face, and there was some feet of construction between the portal building and the point they went underground.

Q. Perhaps we understand each other. It is your impression in October that that material was removed and hauled down the highway by this railroad?

A. No, that is not correct. The material that was hauled down by this railroad was material from the drift, I presume, that is my recollection.

Q. The matter of whether or not some other material was taken out of this open cut does not have to do with the matter I am discussing. I am discussing the use of the railroad, and it is a fact, is it not, that it was only used to haul the dirt that came out of the drift and that no other dirt was taken out of the excavated or driven portions of the tunnel except that dirt that came out of the drifts say in this first 100 feet in each tunnel, prior to the 1st of December, 1934?

A. I presume that is correct.

Q. And the muck bunker was used in the operation in the latter part of October, 1934 and the railroad was abandoned?

A. I don't recall the date.

Q. There was considerable time lost during the excavation of those drifts because the railroad was tied up and could not move that muck out?

(Testimony of Stephen Davidson Bechtel.)

A. I do not think so.

Q. You do not think so? A. No.

Q. Mr. Bechtel, I am going to show you a letter dated September 28, 1934, from Six Companies of California—this is a copy which, under the understanding we have had here, we wish to introduce, and we now offer in evidence a letter dated September 28, 1934, from Six Companies of California, addressed to Joint Highway District No. 13, which reads as follows:

[Set forth in the Book of Exhibits at page 371.]

[1025]

We offer the letter and attached documents in evidence as Defendant's Exhibit S.

The Court: They may be admitted and marked.

(The documents were marked "Defendant's Exhibit S.")

Mr. Tinning: Q. Will you examine the copy of this exhibit which I hand you, Mr. Bechtel, and which shows instead of 40 feet proposed operation going underground as Mr. Larson testified, 100 feet is proposed to go underground, that is true, is it not?

A. I might say, Mr. Tinning, I have never seen this before.

Q. Will you look at it and state whether my statement as to this diagram of the tunnel is correct? Will you look at the bottom of the page, and see if the original tunnel operation is 100 feet?

A. Plus or minus.

(Testimony of Stephen Davidson Bechtel.)

Q. Plus or minus? A. Yes.

Q. In other words, whatever distance was necessary within 100 [1026] feet? A. Yes.

Q. That is correct, is it not? A. Yes.

Q. It is a fact, is it not, Mr. Bechtel, that at this time Six Companies made no objection in writing to the fact that the distance which was necessary to operate under the procedure shown by this diagram was in excess of 40 feet?

A. I presume that is correct.

Q. You don't know of any objection, do you?

A. I don't know of any objection.

Q. You were president of the company?

A. Yes.

Q. Was any claim in writing made to the District for 60 feet of extra work or cost shown on this diagram?

A. None that I know of at this time.

Mr. Tinning: I will now offer in evidence a letter in copy form addressed by Six Companies of California over the signature of S. D. Bechtel, President, on the 18th of October, 1934, to Hon. T. A. Reardon, Director of the Department of Industrial Relations, State Building, San Francisco, California. I now offer this letter in evidence as Defendant's Exhibit in proper order.

The Court: It will be admitted and marked.

(The letter was marked "Defendant's Exhibit T.")

Mr. Tinning: I will read it. It is dated October 18, 1934. [1027]

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT T.

October 18th, 1934

Honorable T. A. Reardon,
Director of the Department
of Industrial Relations,
State Building,
San Francisco, California.

Dear Sir:

We are now engaged in the performance of our contract with Joint Highway District No. 13 of the State of California for the construction of the project, including highway, highway tunnel and approaches, with appurtenant structures, commonly referred to as the Broadway Low Level Tunnel. We respectfully request that you examine said Project and determine, as to that portion hereinafter referred to, that the application of the provisions of Section 653c-1 of the Penal Code is impracticable.

This request is not intended to apply to the entire project, but only to that part having to do with the tunnel proper, including, however, certain operations incidental to the construction of the tunnel which are carried on outside the tunnel and at the portals. These outside operations involve certain plant facilities, such as compressors, electrical shop, concrete mixing plant, carpenter shop, and tunnel muck dis-

(Testimony of Stephen Davidson Bechtel.)

posal work. In this connection we desire to point out that the work on the portion of the project which we have referred to covers only about 50% of the work on the entire project and that no request is made as to the balance.

We request that as to the portion of the project which we have described above, we be permitted to operate on a 48-hour week in lieu of a 30-hour week. In making this request we desire to point out that the only matter involved here is the question of the hours of labor and that the wage scale provided for in our contract with the District will be fully complied with.

In support of this request, we desire to submit the following facts to you:

In carrying out our contract with the District it will be necessary for us to construct two twin bores, each approximately 3,000 feet in length and 36 feet in diameter. While a project of this size does not permit an accurate analysis or forecast as to the type and formation of the ground through which the tunnels are to be constructed, it has now become apparent, and our engineers are of the opinion, that in the main the tunnels will not be constructed through hard rock but rather through comparatively soft earth and rock for a considerable distance. As a result of this condition, the hazards in connection with the construction of

(Testimony of Stephen Davidson Bechtel.)

the tunnels will be greatly increased. These hazards involve not only the safety of the project, but also the safety of all of the men employed in the performance of the work.

To this hazardous factor there must also be added an additional hazard due to the size of the tunnel. Experience has shown that as the dimensions of a tunnel increase, the hazards increase in a much greater proportion. Accordingly, considering the size of the tunnels and the type of material which we have encountered, it is our belief that the construction of the tunnels will be extremely hazardous.

Under these circumstances, it is essential that we have available at all times thoroughly competent and experienced men and that insofar as possible all conditions tending to increase the hazards be eliminated. In performing our work, therefore, we feel that we cannot use inexperienced men. Quite to the contrary, it is extremely important that we have a small number of crews the members of which are all experienced and skilled.

In connection with the number of crews, we desire to point out that the more frequent the changes in crews, the greater the hazards. Here, again, experience has shown that it is essential that tunnel construction work be as continuous as possible. While it is true that in certain types of work a frequent change of crews

(Testimony of Stephen Davidson Bechtel.)

tends to decrease the possibility of accidents, a contrary rule applies to tunnel work. The various operations in connection with the construction of a tunnel, involving drilling, shooting and mucking, can be carried on with best possible correlation and safety by the use of a limited number of crews working on at least an 8-hour basis. This is particularly true in soft ground tunnels where heavy timbering is required, for in such situations the use of a minimum number of shifts and men cannot help but diminish the possibility of a catastrophe to the tunnels and the workmen.

So far as an adequate supply of experienced men is concerned, we must point out that the fact that a tunnel is being constructed near a metropolitan area does not of itself lead to the conclusion that an adequate supply of competent workmen can be obtained. Experienced tunnel workers are of necessity a roving type of workmen, since they move about the country from project to project and are obtainable only from the various available tunnel labor markets. Consequently, it cannot be expected that even in cities of the size of Oakland or San Francisco any appreciable number of experienced tunnel men can be obtained, for the simple reason that this type of construction rarely occurs in this locality.

(Testimony of Stephen Davidson Bechtel.)

The condition of the tunnel labor market is further aggravated at the present time, so far as the Broadway Low Level Tunnel is concerned, because of the fact that several major tunnel construction jobs are now being performed on the Pacific Coast, and particularly in this State. It is to be noticed that a major project is now being carried out in the southern part of the State by the Metropolitan Water District. On this project the tunnel workers have been permitted to work 56 hours and due to this attraction to the workmen a great number of them have already been engaged in the performance of that job. The Fort Peck Project in Montana, on which the men are permitted to work in excess of 30 hours per week, has also drawn a considerable number of tunnel men from this region. Incidentally, it is our belief that most of the men who were engaged in the Hetch Hetchy work have already left this region and secured employment on the projects which we have mentioned. It is obvious that we cannot expect to obtain for our work men of experience and ability while we are restricted to a 30-hour week, when other similar projects are being carried on under conditions offering the men more attractive hours of labor, for the men naturally go to those projects where they can receive the greatest income.

The available supply of experienced labor has

(Testimony of Stephen Davidson Bechtel.)

been further diminished at the present time because of the revival of activity in the mining industry throughout the West. Due to this condition many experienced tunnel men have been removed from the available supply of labor in this State, and additional numbers will continue to engage in this industry because of the fact that they may obtain employment for a greater number of hours per week than is permitted on our project at the present time.

The situation confronting us in the employment of qualified labor for the construction of the tunnels is comparable to one of the situations as to which, under the Code of Fair Competition for the Construction Industry, a 48-hour week rather than a 40-hour week is permitted. In subdivision B, 1, (c) of Section 2 of Article III of that Code, it is provided that "on projects in localities where a sufficient amount of qualified labor is not available in the immediate vicinity of the work" an exception to the general code provision as to hours of labor may be made. In our work on the Broadway Low Level Tunnel we have encountered extreme difficulty in procuring a sufficient number of qualified and experienced tunnel men. The employment of inexperienced men increases the labor turnover, as a result of which the factors of safety are materially reduced

(Testimony of Stephen Davidson Bechtel.)

and the efficiency of the entire project is impaired.

On the basis of these facts, we request that you examine the Broadway Low Level Tunnel Project, determine that as to that portion to which we have referred the application of the provisions of Section 653c-1 is impracticable and that a 48-hour week be authorized for such work. We shall be glad to furnish any additional information that you require and to give you any assistance that may be necessary in order to permit a determination of this matter. Your early attention to this request is earnestly solicited.

Respectfully yours,
SIX COMPANIES OF
CALIFORNIA,

By

President.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. T. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

The Court: We will take a recess for a few minutes. [1032]

(After Recess)

Mr. Tinning: Q. Mr. Bechtel, when Six Companies of California bid on this work, you knew

(Testimony of Stephen Davidson Bechtel.)

that both the law of the State of California and the PWA regulations provided that the men who worked on the job could not work more than 30 hours per week? A. Yes.

Q. You also knew that all of the men who worked on the job had to come either through the National Reemployment Office or, if you desired to make the job 100 per cent Union, through the Unions? A. Yes.

Q. You also knew that, under the Union method of calling men, if the Unions in the region where the work was to be done could not supply men, you could call men anywhere in the United States and they could go to work on this job and join the Union? A. Yes.

Q. You selected, at the onset of your work, to take your men through the National Employment Office? A. Yes.

Q. And, with the kind that you selected, you encountered the difficulties which you refer to in your letter of October 18th, with respect to experienced men?

A. I think that was subsequently modified, Mr. Tinning, and men drawn through both sources.

Q. I am talking now of the October letter. You were drawing men through the National Reemployment Service at the time you wrote the letter on October 18, 1934, to Mr. Reardon, that has just gone into evidence; you were drawing all your men through the National Employment Office?

(Testimony of Stephen Davidson Bechtel.)

A. I think so.

Q. That was the method that you selected, yourself, when you started the work? A. Yes.

Q. At that time, and from the beginning of the work, you had authority to work on Saturdays, Sundays and other holidays, without the payment of overtime, upon a ruling that was obtained by the District from the PWA and the state?

A. Yes.

Q. The District helped to get that provision, or obtained that [1033] provision, before any work was started?

A. I am not clear on that point.

Q. Well, isn't it your recollection that it was announced—— A. It was a fact.

Q. Yes. When you wrote the letter of October 18, 1934, you were aware of the fact, as so stated in your letter, that in the main the tunnels would not be constructed through hard rock but through comparatively soft earth and rock for a considerable distance; you knew that when you letter that letter, didn't you? A. No.

Q. Didn't you so state in your letter?

A. I don't believe so.

Mr. Tinning: May I have Defendant's Exhibit "T," please?

The Witness: May I see it?

Mr. Tinning: Q. Yes; perhaps that would be better. Now, it is true, when you read the letter,—I think perhaps you did not understand my ques-

(Testimony of Stephen Davidson Bechtel.)

tion, Mr. Bechtel; you did not have that long letter in front of you —it is true that you stated, in that letter to Mr. Reardon:

"While a project of this size does not permit an accurate analysis or forecast as to the type and formation of the ground through which the tunnels are to be constructed, it has now become apparent, and our engineers are of the opinion, that in the main the tunnels will not be constructed through hard rock but rather through comparatively soft earth and rock for a considerable distance"?

You so stated in the letter to Mr. Reardon, and you knew that to be a fact, at that time, did you not? A. No.

Q. Well, you wrote the letter, didn't you?

A. Yes.

Q. You don't mean to say you stated something in a letter to Mr. Reardon which you did not know to be a fact?

A. I don't think it says that. Possibly, in connection with the letter, there is a little background to it and the events which followed, which are part of the [1034] purpose and part of the matters touched upon here.

Q. Well, Mr. Bechtel, I am drawing your attention to a specific instance, and I am asking you now if, at the time you wrote that letter to Mr. Reardon on October 18, 1934, it is not a fact that you made the statement which appears in the paragraph which commences at the bottom of the page of the

(Testimony of Stephen Davidson Bechtel.)

copy that you hold,—page one,—and goes on to page two, in that same paragraph.

A. Well, Mr. Tinning——

Q. Will you answer me "Yes" or "No," whether the statements you made—the statement that appears there——

A. Well, it is apparent that I made the statement; it is in the letter.

Q. Was the statement true or not true?

A. I guess I am confused as to just what you mean, Mr. Tinning.

Mr. Tinning: Will you read the question, please?

(Record read)

The Witness: A. It was.

Mr. Tinning: Q. Will you answer it "Yes" or "No," Mr. Bechtel, and then explain?

A. You mean is it true what was written?

Q. Is the statement, in the paragraph referred to, true or not true?

A. The statement in the letter, as it appeared at that time, and based upon the background of this letter, is true.

Q. So, you knew, at that time, on October 18, 1934, that in the main the tunnels would not be constructed through hard rock but would be constructed through comparatively soft earth and rock for a considerable distance?

A. I don't think that that is what is intended by the letter.

(Testimony of Stephen Davidson Bechtel.)

Q. Well, did you know it or did you not know it? A. I did not know it.

Q. You did not know it? Then, although you wrote the letter of October 18th to Mr. Reardon, you did not know the conditions which you stated there were true?

A. This letter grew out of discussions——

[1035]

Q. Will you answer "Yes" or "No," Mr. Bechtel, and then explain?

A. Will you repeat the question, please?

Mr. Tinning: Will you read the question, please?

(Question read)

The Witness: A. It doesn't say that they are true, Mr. Tinning.

Mr. Tinning: Q. I am asking you whether you made the statements that were made in that letter.

A. Yes, I did.

Q. Did you or did you not know them to be true at the time you made them?

A. I thought what I was endeavoring to say here was correct.

Q. And that was your understanding at the time you wrote the letter? A. Yes.

Q. Thank you. When you wrote the letter of October 18th to Mr. Reardon, you knew that a project of the size of the Broadway Low Level Tunnels did not permit of an accurate analysis or forecast as to the type and formation of the ground through which the tunnels were to be constructed?

A. Yes.

(Testimony of Stephen Davidson Bechtel.)

Q. That was also in your mind at that time?

A. Yes; an exact analysis cannot be made.

Q. An accurate analysis cannot be made?

A. I say an exact analysis and accurate.

Q. At the time you wrote the letter, you also knew that, due to the size of the tunnels and the ground to be encountered, heavy timbering would be required? A. No.

Q. Didn't you so state in the letter?

A. Let me see the letter.

Q. Next to the last paragraph on page two of the copy you hold. Will you please look at the last sentence? You wrote that last sentence, did you not? A. Yes; that is right.

Q. Put it in the letter? A. Yes.

Q. It reads: [1036]

> "This is particularly true in soft ground tunnels where heavy timbering is required, for in such situations the use of a minimum number of shifts and men cannot help but diminish the possibility of a catastrophe to the tunnels and the workmen."

When you wrote that sentence, you knew that heavy timbering would be required in this tunnel, did you not?

A. That some would be required and was being used.

Q. That some heavy timbering would be required? A. Was being used.

(Testimony of Stephen Davidson Bechtel.)

Q. On October 18th, you were just going underground, weren't you? A. That is correct.

Q. That was the heavy timbering that you referred to at that time?

A. Yes; but, Mr. Tinning, when this letter was written, we had hoped that the tunnel ground would be improved and we would find the better tunnel ground which we had understood we were to find, and that we had planned on; and that same opinion continued for a long time thereafter; and this letter was written for the purpose of procuring permission to have our labor situation on what was comparable with other jobs being constructed in this general territory,—Southern California, Sierra Nevadas, and in Northern California; and it was written for that purpose and was written after discussions with Mr. Reardon, after discussions, as I understand it, with the Highway Department, with Mr. Wallace Boggs; and this letter incorporated the thoughts and suggestions of a number of men as to the reasons why this should be granted, incorporating, as I say, the thoughts of a number of these men,—the suggestions which they had made,—and with the purpose in mind, and the only purpose in mind, of this letter, was to procure the acception or the approval of the Industrial Accident Commission of the State of California, the Joint Highway District and the other bodies that were involved,—permission to employ the men longer

(Testimony of Stephen Davidson Bechtel.)

periods of time; that was the reason stated in the letter, and for that purpose alone. [1037]

Q. Mr. Bechtel, is there any statement in this letter which is untrue?

A. Not to my knowledge.

Q. Was there any statement made in the letter which you knew was untrue at the time that you wrote it?

A. No. I think that would be obvious; I would not sign it, if I did not think it was correct, from the information I had at the time—the thought I had at the time.

Q. When you wrote the letter, there was no statement made in it which you did not believe to be true? A. That is correct.

Mr. Tinning: We will offer in evidence, if the Court please, a letter dated November 27, 1934, addressed to "Board of Directors, Joint Highway District No. 13 of the State of California," by "Six Companies of California," signed by "S. D. Bechtel, President," and ask it be marked in proper order.

(The letter was marked "Defendant's Exhibit U.")

Mr. Tinning: Gentlemen, this letter is very much the same as the one of October 18th, and I would like to read portions of it into the record which we consider are admissions and not read the rest of the letter, because it is long. If you desire the letter read——

Mr. Smith: I don't think that is a fair way to read a document or anything that is contained in the document——

Mr. Tinning. Very well; we will read it, Mr. Smith: [1038]

DEFENDANT'S EXHIBIT U.

Builders of Low Level Broadway Tunnel
Six Companies of California
155 Sansome Street
San Francisco, Calif.

November 27th, 1934.

Board of Directors,
Joint Highway District No. 13
of the State of California,
1448 Webster Street, Oakland, California.

Gentlemen:

As you are aware, the work of constructing the Broadway Low Level Tunnel has been closed down by us. We closed this work down for several reasons, the principal one, however, being our inability to procure competent labor for the construction of the tunnels under the existing restrictions in our contract and the regulations surrounding the employment of labor.

Our inability to secure competent labor for the tunnel work arises out of the following conditions:

(Testimony of Stephen Davidson Bechtel.)

The location in which this work is being done, while comparatively close to populous communities, is isolated from any adequate supply of labor of the type required for the construction of tunnels, particularly tunnels through soft ground and of the size being constructed under this contract. It is essential that the timbering and blasting operations as well as the other work in such tunnels be done by men experienced in this kind of work. This kind of work requires experienced miners. The laborers available in the District are not miners. They are mostly farmers, small home owners, and other kinds of ordinary laborers.

One of the principal reasons for this situation arises from the fact that extensive tunnel work is being carried on in Southern California at the present time under regulations permitting the men to work sixty per cent more hours and earn fifty per cent more money at a less rate per hour of pay than on the Broadway Tunnel Work. It is also a fact that a large amount of the Southern California tunnel work is being carried on near populous communities and that nevertheless these rigid restrictions have been modified so far as that work is concerned. Men experienced in tunnel work will not accept employment with us when, by going to Southern California, they can earn substantially more money. Furthermore, the laborer

(Testimony of Stephen Davidson Bechtel.)

who works in tunnels ordinarily moves from one job to another and is not permanently located in any community.

We submit that it is inequitable and unfair to permit other work of a similar nature to be carried on under more favorable conditions in Southern California when such other work is in direct competition with us for the available supply of labor.

The construction of this tunnel, because of its size and the nature of the ground, is a dangerous operation. It is impossible to give minute supervision to the details of the work which each man is doing and, in the interests of the protection of human life, it is essential that competent men be placed on the work. Improper timbering, blasting, and other operations required will, unless the work is properly done, inevitably endanger the lives of all of the men working in the tunnels. In view of the fact that the present regulations applicable to this job will necessarily, if not modified, require us to construct the tunnel with incompetent employees, we hereby protest against reopening the work until the present restrictions are modified so that the hazard to the men can be eliminated.

We believe that the only other tunnel now being constructed which is on a thirty hour a week basis is the tunnel through Yerba Buena

(Testimony of Stephen Davidson Bechtel.)

Island. The work on this tunnel is not comparable with the work on the Broadway Tunnel. The Yerba Buena tunnel is a short tunnel through hard rock and does not involve the hazards which will necessarily be encountered in constructing the Broadway Tunnel. Furthermore, the time schedule is such that the operations on the Yerba Buena tunnel are not required to be carried on at the same rate of speed as on the Broadway Tunnel. Also, the contractor on the Yerba Buena tunnel is not working under the same regulations and has complete freedom in the selection of his men.

We are satisfied that if the present regulations were modified to permit a working week of forty-eight hours on the tunnel operations the foregoing unsatisfactory and dangerous conditions could be eliminated. This work would then be placed on a basis where we could offer the men an opportunity to make comparatively the same wages that they do on other work of a similar nature in Southern California, and we feel that this would enable us to secure sufficient competent men to do the work promptly and efficiently and without any unnecessary hazard.

May we, therefore, ask that you take the appropriate steps to secure a modification of the present regulations so as to permit the tunnel operations to be carried on on the basis of a

(Testimony of Stephen Davidson Bechtel.)

forty-eight hour week before work on this project is resumed.

Very truly yours,
SIX COMPANIES OF
CALIFORNIA,
By (Signed) S. D. BECHTEL
President.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: If the Court please, we offer in evidence a letter dated December 1, 1934, addressed to "Board of Directors, Joint Highway District No. 13," by "Six Companies of California," signed by "S. D. Bechtel, President"; and ask that the same be marked as a defendant's exhibit.

(The letter was marked "Defendant's Exhibit V.")

Mr. Tinning: (Reading): [1041]

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT V.

Builders of Low Level Broadway Tunnel
SIX COMPANIES OF CALIFORNIA
Field Office Post Office Box 120
Berkeley, California

December 1, 1934

Board of Directors
Joint Highway District No. 13
of the State of California,
1448 Webster St.,
Oakland, California.

Gentlemen:

As you are aware, the work of constructing the Broadway Low Level Tunnel has been closed down by us. We closed this work down for several reasons, the principal one, however, being our inability to procure competent labor for the construction of the tunnels under the existing restrictions in our contract and the regulations surrounding the employment of labor.

In our preliminary operations of going underground, we have obtained from the N. R. S. Bureau 230 men for tunnel work. Of this number, we have made the following disposition:

(Testimony of Stephen Davidson Bechtel.)

Quit, have better jobs	47
Discharged, totally unfit	30
Reduced from miners to muckers, because of qualifications	24
Discharged, non-citizen	5
Discharged, medical rejection	26
Deceased	1
Total number remaining on call	97
	230

Of the 97 indicated above, who are technically on call, we estimate there are approximately 30 who by their work have indicated that they are fair tunnel men. As only 200 tunnel men, in addition to the above, are registered at the N. R. S., we do not believe that we would be able to secure any greater percentage of satisfactory tunnel men from these remaining men than that which we have experienced above.

Our inability to secure competent labor for the tunnel work arises out of the following conditions:

The location in which this work is being done, while comparatively close to populous communities, is isolated from any adequate supply of labor of the type required for the construction of tunnels, particularly tunnels through soft ground and of the size being constructed under this contract. It is essential that the timbering and blasting operations as well

(Testimony of Stephen Davidson Bechtel.)

as the other work in such tunnels be done by men experienced in this kind of work. This kind of work requires experienced tunnel men. The laborers available in the District are not tunnel men. They are mostly farmers, small home owners, and other kinds of ordinary laborers.

One of the principal reasons for this situation arises from the fact that ninety (90) miles of tunnel work is being carried on in Southern California at the present time under regulations permitting the men to work sixty percent more hours and earn fifty percent more money at a less rate per hour of pay than on the Broadway Tunnel work. It is also a fact that a large amount of the Southern California tunnel work is being carried on near populous communities and that nevertheless these rigid restrictions have been modified so far as that work is concerned. Men experienced in tunnel work will not accept employment with us when, by going to Southern California, they can earn substantially more money. Furthermore, the laborer who works in tunnels ordinarily moves from one job to another and is not permanently located in any community. Also many miners are going into mining work due to the large development now underway in that field.

We submit that it is inequitable and unfair to permit other work of a similar nature to be carried on under more favorable conditions in

(Testimony of Stephen Davidson Bechtel.)

Southern California when such other work is in direct competition with us for the available supply of labor.

The construction of this tunnel, because of its size and the nature of the ground, is a dangerous operation. It is impossible to give minute supervision to the details of the work which each man is doing, and, in the interests of the protection of human life, it is essential that competent men be placed on the work. Improper timbering, blasting, and other operations required will, unless the work is properly done, inevitably endanger the lives of all of the men working in the tunnels. In view of the fact that the present regulations applicable to this job will necessarily, if not modified, require us to construct the tunnel with incompetent employees, we hereby protest against reopening the work until the present restrictions are modified so that the hazard to the men can be eliminated.

We believe that the only other tunnel now being constructed which is on a thirty hour a week basis is the tunnel through Yerba Buena Island. The work on this tunnel is not comparable with the work on the Broadway Tunnel. The Yerba Buena tunnel is a short tunnel through hard rock and does not involve the hazards which will necessarily be encountered in constructing the Broadway Tunnel. Furthermore, the time schedule is such that the

(Testimony of Stephen Davidson Bechtel.)

operations on the Yerba Buena tunnel are not required to be carried on at the same rate of speed as on the Broadway Tunnel. Also, the contractor on the Yerba Buena tunnel is not working under the same regulations and has complete freedom in the selection of his men.

We are satisfied that if the present regulations were modified to permit a working week of forty-eight hours on the tunnel operations, the foregoing unsatisfactory and dangerous conditions could be eliminated. This work would then be placed on a basis where we could offer the men an opportunity to make comparatively the same wages that they do on other work of a similar nature in Southern California, and we feel that this would enable us to secure sufficient competent men to do the work promptly and efficiently and without any unnecessary hazard.

A crew will be composed of the following men, with the respective rates shown:

Ten miners,	at	$0.75 per hour
Two nippers,	at	$0.60 per hour
Seven chuck tenders,	at	$0.60 per hour
Fifteen muckers,	at	$ .60 per hour
One shovel operator,	at	$1.25 per hour
One dinky operator,	at	.75 per hour
One powder man,	at	.75 per hour
Two pitmen,	at	.60 per hour
One brakeman,	at	.65 per hour
One tugger man,	at	1.25 per hour

(Testimony of Stephen Davidson Bechtel.)

This makes a total crew of forty-one (41) men. Practically all these men are trained in the various operations undertaken in a heading and are required to know safe practices in the different kinds of work performed underground, namely, drilling, blasting, timbering and mucking.

May we, therefore, ask that you take the appropriate steps to secure a modification of the present regulations so as to permit the tunnel operations to be carried on on the basis of a forty-eight hour week before work on this project is resumed? On the thirty hour week this would amount to 229 men affected; on a forty-eight hour week, 144 men would be affected.

Very truly yours,

SIX COMPANIES OF CALIFORNIA,

By (Signed) S. D. BECHTEL
President (T. M. P.)

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. V. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

[Endorsed]: Received Dec. 1, 1934. Joint Highway Dist. No. 13.

Mr. Tinning: Q. When you wrote this letter, you made a statement that the work was closed

(Testimony of Stephen Davidson Bechtel.)

down on the Broadway Tunnel by you. When you bid on this job, you knew the specifications required you to leave the concrete forms on the lining for a period of 21 days, which was required by the District Engineer?

Mr. Marrin: This letter appears to have been signed by someone else, on Mr. Bechtel's behalf,—"T. M. P."—apparently, Mr. Tom Price. I wonder if you would mind showing him the original, to see whether he actually signed it or not?

The Witness: Yes, that is signed by Mr. Tom Price, upon my authority.

Mr. Tinning: Q. Did you dictate the letter, or did Mr. Price?

A. I believe that Mr. Price did.

Q. However, the statement that appears at the first paragraph of this letter of December 1st is substantially the same as the statement that appears in the first paragraph of the letter which you did sign, yourself, which you wrote on November 27, 1934?

The Court: I think the witness indicated that he authorized the letter in question.

Mr. Tinning: Yes. [1045]

Q. Well, you knew, at the time you signed it, that the specifications in this matter gave the District Engineer the right to retain the concrete forms on the concrete lining 21 days, up to that time, did you not? A. Yes.

Q. It is a fact, is it not, the rings that were placed at the west portal of these tunnels were required by the District Engineer to remain with the

(Testimony of Stephen Davidson Bechtel.)

forms in place for 21 days after the concrete was poured? A. Yes, I think so.

Q. So that the work was shut down at the west portal of the tunnels primarily and apparently because you could not work driving further in while the forms were stulled in the core in each of those two portions of the tunnel; that is true, isn't it?

A. I presume so.

Q. So that, from about the 6th or 7th of November,—or the 14th of November, in the north bore, and the 6th or 7th, on the south bore, until the 5th or 6th of December, the work was shut down because you could not drive through the point where you had those forms supported against the stulls waiting for the concrete to season?

A. We could have, with the approval of the Engineer, apparently, Mr. Tinning.

Q. But you did not get that approval, did you?

A. I don't think so.

A. And the forms remained the 21 days?

A. As I recollect it.

Q. You say the work was shut down and the driving of those tunnels was shut down to permit the concrete to season in accordance with the provisions of the specifications and the conditions which you knew when you bid? A. That is right.

Q. That is right, isn't it?

A. I would think so.

The Court: We will take a recess until two o'clock this afternoon.

(Thereupon, an adjournment was taken until two o'clock p. m., this date.) [1046]

(Testimony of Stephen Davidson Bechtel.)

Afternoon Session,
Tuesday, April 26, 1938;
2 O'Clock P. M.

STEPHEN DAVIDSON BECHTEL,

Cross Examination (Continued)

Mr. Tinning: Q. Mr. Bechtel, so that it will be easier for you to answer the questions, I will hand you the letter that has been previously admitted in evidence as Defendant's Exhibit "V."

Mr. Bechtel, when you wrote that letter which is dated December 1, 1934, what did you have in mind when you wrote the sentence which appears as the first sentence of the fourth paragraph on the second page of that letter? So there will be no confusion, will you please turn to it? What did you mean when you wrote that sentence:

> "The construction of this tunnel, because of its size and the nature of the ground, is a dangerous operation——"

What did you mean by "the nature of the ground"?

A. Mr. Tinning, this was written over my signature, with my approval, but by Mr. Price, I believe.

Q. What did you mean when you approved it?

A. Well, I approved, to Mr. Price, the submission of this letter which I believe that he called me on the phone and asked me my approval for; and after he had discussed this matter with the Indus-

(Testimony of Stephen Davidson Bechtel.)

trial Accident Commission, I believe with Mr. Boggs, the PWA people and the National Reemployment people; and it, in substance, was the same as the previous discussions we had had, and was furthering the end of procuring or asking for the approval to work a 48 hour week.

Q. I understood that was the purpose of the letter; but what, in your mind, was the meaning of the words that you were using in seeking to get the permission, "and the nature of the ground"?

A. Well, the nature of this ground—that was probably referring [1047] to the fact that, at that time, we had constructed something like 90 feet in the north tunnel and 110 feet in the south tunnel. We knew that that ground was difficult,—more difficult than we had anticipated; we knew it was very difficult ground, and we hoped we would have better ground, but we were not sure but what we would have continued bad ground; and, in referring to the nature of the ground here, I assume that that was what was involved.

Q. You did not say anything in this letter that you met any unanticipated conditions; you did not say anything about unanticipated conditions in this letter, did you? A. Apparently not.

Q. And you were referring not to the ground through which you had passed but the ground into which you intended to drive?

A. It was based upon the ground through which we had gone to that time, and it was anticipating a

(Testimony of Stephen Davidson Bechtel.)

ground condition that might or might not get better; we hoped it would get better, but we did not know whether we would get better ground, and we were preparing for the contingency where the bad ground would continue for some distance.

Q. And that was what you menat when you stated to Mr. Reardon, in your letter of October 18, 1934, that it was impossible to predict the ground you might encounter in a project of this size?

A. That is right, yes.

Q. All right. Will you proceed to the last sentence of that paragraph:

> "In view of the fact that the present regulations applicable to this job will necessarily, if not modified, require us to construct the tunnel with incompetent employees, we hereby protest against reopening the work until the present restrictions are modified so that the hazard to the men can be eliminated."

Why were you protesting to the District when you were dealing with the Industrial Accident Commission?

A. Well, this matter had been discussed with Mr. Boggs, because it was with the District [1048] that we had our contract. Our contract conditions were that we could not work over 30 hours per week at that time, and we were applying to Mr. Boggs, or the District; we were also applying to the Industrial Accident Commission, Mr. Reardon, because

(Testimony of Stephen Davidson Bechtel.)

we understood that that was the procedure that we should follow. We were so instructed to that effect by Mr. Boggs: that we should do it.

Q. As a matter of fact, your contract provisions and the provisions of the laws of the State of California and the United States PWA regulations would govern the hours of labor of men working on the work; that is true, isn't it. A. Yes.

Q. You have already stated you knew that when you estimated? A. Yes.

Q. When you bid. And it was necessary for you to apply to the Department of Industrial Relations under the then law, the provisions of Section 653C of the Penal Code for special permission to work men more than 30 hours per week on this type of work?

A. Substantially, yes; but I don't think—I did not intend to say at that time there was no state law which required you could not work over 30 hours a week; that was a contract provision. We were advised by you, or by Mr. Boggs, that we had to first get the approval of the Industrial Accident Commission, also the District, also the PWA, also the NRS; and the burden of the proof on the entire matter was put up to us, and we made the rounds not once but several times,—Mr. Price did, and myself,—on that subject.

Q. Mr. Bechtel, referring again to your letter of October 18, 1934, which you have got before you, I want to call to your attention that, at the end of the

(Testimony of Stephen Davidson Bechtel.)

first paragraph, you made your first application under the provisions of Section 653C1 of the Penal Code, which was the statute,—an emergency statute,—in effect at the time the contract was let, as up to that year; thereafter, until the [1049] Legislature met in 1935, it limited the work on all public projects to 30 hours per week unless you got a waiver from the Department of Industrial Relations. You have just told me that you thought it was a contract provision. It was a provision of law which you referred to in your letter?

A. Well, we applied to both, Mr. Tinning, endeavoring to get their approval. I understood we had to get the approval of the Industrial Accident Commission, likewise that of Joint Highway District No. 13; and we were somewhat guided by the advice and views and directions we got from Mr. Boggs and from Mr. Reardon's office, and all parties that were involved.

Q. Well, you had attorneys, didn't you?

A. Yes.

Q. And they assisted you in the preparation of this application? A. Yes.

Q. They saw your letters?

A. Undoubtedly they did.

Q. Why were you protesting to the District when it was a matter for Mr. Reardon of the Division of Industrial Relations?

A. Well, this is directed to Joint Highway District No. 13.

(Testimony of Stephen Davidson Bechtel.)

Q. Yes. I am asking why you were protesting to us about something that was in your contract.

A. To get your approval and get your support to a proposition which we thought was favorable to the work, and we were doing everything possible.

Q. And you assumed you could get our support by protesting?

A. Well, I would gather that must have been in our minds. I cannot recall the reason why we used certain words, but that was our purpose: to get your support or get your approval, or both.

Q. Following the filing of the letter with the Industrial Accident Commission, you testified, at a hearing—let me withdraw that question. Following the filing of the letter with the Department of Industrial Relations of the State of California, Mr. Bechtel, you testified, at a hearing before Mr. Reardon, the Director of the [1050] Department, on the 4th day of December, 1934—do you remember that hearing in Mr. Reardon's office?

A. I remember a hearing there; but I don't remember the date.

Q. Do you remember that Mr. Reardon, the Director of the Department, was there; Mr. Frank Burke, Secretary; there was a court reporter; Mr. Boggs and myself were there; Colonel Skaggs, Division Engineer of the State Highway Commission, was present; and L. M. Larson, T. M. Price, T. D. Ferneau,—who was a state inspector, I believe; and they were present at that time?

(Testimony of Stephen Davidson Bechtel.)

A. I don't remember each one of those being present.

Q. Do you remember, at that hearing, you appeared there for the application that was initiated by your letter of the 18th of October and had been followed by letters to the Department, dated the 27th of November and the 1st of December?

A. Yes.

Q. Which we have already introduced. I will ask you if, at that time and at that hearing and pursuant to the application which Six Companies of California was making for a change in the 30 hour work rule—if you made this statement at that hearing:

> "The condition would be substantially improved over that which now exists. If we could cooperate with the National Reemployment Service in the selection of men, or picking, judging ability of the men, even then we would have difficulty in holding experienced men on this job and work them only 30 hours per week. The earnings on the job are not attractive. On account of the large tunnel work done in Southern California, Parker Dam, Boulder Dam, and the mining industry. Mining all over the western country is drawing upon experienced miners constantly. However, it would be of substantial benefit and help in solving this problem if we could find some modification or other prac-

(Testimony of Stephen Davidson Bechtel.)

ticable application of employment through the National Reemployment Agency." [1051]

Do you remember that?

A. I don't remember the particular phrasing you speak of; but I remember being there, and I remember my testifying, Mr. Tinning.

Q. Do you remember giving the further statement:

"We understand that there are approximately 200 men registered as miners. Our experience, I can state from actual statistics we have kept of same, and if the ratio would continue, we would get between 25 and 30 tunnelmen out of the ones reported to be available provided the 30 hour per week would continue. I would like to comment on this thing. These tunnels are being constructed through the Coast Range Mountains. Experience over 40 years indicates that the Coast Range in every instance presents dangers and difficulties. We have records of bad tunnels. The San Pablo Tunnel was constructed for the East Bay Water Company 15 years ago and in one accident eight lives were lost. The Claremont Tunnel is within a mile or so of this tunnel. Different conditions develop on both ends of tunnels 3 miles long. There is very wet swelling ground and difficult ground. The Sacramento Northern Tunnel presented a number of difficult conditions. The Northern

(Testimony of Stephen Davidson Bechtel.)

Pacific Tunnel through Niles Canyon in the Coast Range Mountains was extremely difficult."

I think, by that, you were referring to the Western Pacific; possibly the reporter made a mistake?

A. Probably so.

Q. "It took twice as long to construct than contemplated. In the Hetch Hetchy Tunnel, as you know, there was swelling and difficult hazardous ground was experienced there. Through those same mountains we have to construct this tunnel. In the Coast Range you get a different formation—no continuity. You have to have versatile crews and high type men. We have that in the selection of the crew and the men on the job. Of six contractors who constitute the Six [1052] Companies of California we have good men. The superintendent or foreman has to have experienced tunnel crews. All the men can do any part of the work themselves. Our experience indicates that of the men we have gotten, there is not over a small percentage of them qualified to work in a tunnel of that kind if that tunnel is to be constructed without serious accidents. Relief can come in two forms: First, the lengthening of hours of permissible work for underground men from 30 hours maximum to 40 hours maximum; Second, and partial solution of this will be a modification or cooperative

(Testimony of Stephen Davidson Bechtel.)

understanding having to do with the selection or procuring of men so that experienced tunnelmen could be procured for this work. The present condition of 30 hours per week and non-selectivity of men make it extremely slow to get ahead with a tunnel of this kind. We have to have expreienced men so that the work is done by them as a team and without it difficulties develop. They have developed. We hope to minimize that as time goes on and in cooperation of 40 hours per week and selectivity by the National Reemployment Service of the men we hope to protect the safety of the tunnel and the men."

Do you remember making that statement at that time, Mr. Bechtel?

A. Yes; and I believe it is a very pertinent point, Mr. Tinning, because, in there, I observed, in the Coast Range Mountains there are bad tunnel grounds, there are also good tunnel grounds. I speak there about the two ends of a tunnel,—whether 3 miles apart or 3000 feet apart; they may be different; and that was the case in many of these tunnels. In many of these tunnels referred to, there were portions of them that were very good ground; other portions were very bad ground. It doesn't take very much bad ground in a tunnel to make it a very difficult situation,—a very slow situation. When the first of these letters was written, on October 18,

(Testimony of Stephen Davidson Bechtel.)

1934, we had [1053] completed the bottom drifts of two tunnels,—both the north and south tunnels; and we knew what was encountered in those 100 feet, approximately; and we knew there what we were going to get into, or what was anticipated. We had anticipated good ground; and, up to that point, we had been wrong. We did not know how much further we were going to be wrong. We hoped for better ground; and this letter here, I think, is very pertinent. I think it explains my thought at that time. I would, today, give you the thought that different ends of the same tunnel, of tunnels through the same range—different tunnels in the same territory and the same state, vary substantially; and all a contractor can do is use the best judgment on the information furnished him to make his bid; and that is what we did in this case; we used the information that was called to our attention; we used the information given us by Dr. Louderback, the information which you called to our attention, and we made our caluculations—our assumptions, from that. We found that it was different. When we got to this point here, we had gone in 100 feet and were looking to make more progress and to enter further into the spirit of finishing this job quickly and with a maximum effort and minimum cost, by asking your cooperation and the Industrial Accident Commission for a 48 hour week, then; and then, on the advice of the PWA, of the National Reemployment Service, or Mr. Boggs or a group of people—it was reduced

(Testimony of Stephen Davidson Bechtel.)

to ask for 40 hours a week, which was prevailing in the state somewhat generally at the time; and was subsequently approved.

Q. Mr. Bechtel, Mr. Boggs had nothing to do with the granting of permission for a 48 hour week or a 40 hour week, did he? It was a matter for Mr. Reardon and the PWA authorities and the District Directors?

A. Yes. However, it was not only necessary to secure these approvals referred to, but also to have the approval of the Joint Highway District No. 13 and the District [1054] Engineer,—Mr. Boggs; so it was to that end that we were working in this instance.

Q. You had his full assistance, and full assistance of the District, in getting the 40 hour week, did you not?

A. Mr. Boggs said he could not do anything more than passing it on; that he would not object to it; but, more directly, I think we did have his assistance, or we certainly did not have any objection on his part.

Q. All his assistance and the District's cooperation? A. Yes.

Q. You stated, in your testimony to the Department of Industrial Relations, that "experience over 40 years indicates that the Coast Range in every instance presents dangers and difficulties"? You knew that when you bid, did you not?

(Testimony of Stephen Davidson Bechtel.)

A. No; I think that that is either a misstatement or a matter that was made in conversation. It is not exactly correct, Mr. Tinning. If it was said—if I said it, why, I should probably have corrected it immediately thereafter, because I don't think it is a correct statement.

Q. Let me see if I understand, Mr. Bechtel. Do I understand you to say you did not make the statement on December 4, 1934?

A. I wouldn't say that. I wouldn't say I did not make it.

Q. Mr. Bechtel, I am reading from a certified copy of the transcript of the hearing, that is certified by Gertrude Maloney, the reporter who took the testimony at that hearing, and I have been reading to you, Mr. Bechtel, the examination—the first question was on page 7 of the transcript, and I have been reading now the sentence that appears in the top of page 8. Now, as I understand you, you don't question the accuracy of the report; but you say you did not mean to say what you said there; is that it?

A. That may be it.

Q. Well, what is it?

A. Well, that the exact statement there was made in a matter of a general discussion before a Commission, at which we were having a general discussion of the entire problems [1055] involved. We were discussing tunnels generally, and, if I said that, I don't think that is what I intended to say.

Q. You don't deny you did say it?

(Testimony of Stephen Davidson Bechtel.)

A. I may have probably said it. If the recorder says I said it, I probably said it.

Q. "Experience over 40 years indicates that the Coast Range in every instance presents dangers and difficulties"?

A. If I said it, I was in error.

Q. "We have records of bad tunnels"? Did you say that?

A. If the recorder says I did, I probably did.

Q. "The San Pablo Tunnel was constructed for the East Bay Water Company 15 years ago and in one accident eight lives were lost——"

A. I understood that was correct.

Q. You knew that when you bid on this work, did you? A. I probably did.

Q. "The Claremont Tunnel is within a mile or so of this tunnel"? You knew that when you bid on this work? A. Yes.

Q. You employed Mr. Larson to make the estimate for you, and he had worked on the Claremont Tunnel? A. Correct.

Q. You knew that when you employed him?

A. Yes.

Q. That was one of the reasons that you employed him, wasn't it? A. One of them.

Q. He knew the conditions to be encountered on your estimate; that was true?

A. Well, he knew what his experience had indicated. Having known he went there and was there for a long period, and his familiarity with condi-

(Testimony of Stephen Davidson Bechtel.)

tions generally around the Bay, and this tunnel construction generally, we employed him.

Q. His experience that you employed for the purpose of preparing this estimate was a part of the experience of over 40 years that indicated that the Coast Range in every instance presents dangers and difficulties?

A. I referred to the Claremont Tunnel there, and did employ Mr. Larson. [1056]

Q. "Different conditions develop on both ends of tunnels 3 miles long"? That was with reference to the Claremont Tunnel, wasn't it?

A. I presume it was.

Q. You knew, when you were giving this testimony, that there had been a great deal of difficulty in driving the Claremont Tunnel?

A. I did not so assume.

Q. You did not so assume?

A. No. I say I did not consider the ground had been difficult as a tunnel job. I had considered it was a good tunnel.

Q. You considered it a good tunnel?

A. Generally speaking, yes.

Q. Did you consider that, when you bid on the Broadway Tunnel?

A. Probably it had some effect.

Q. You thought the Claremont Tunnel was a good tunnel when you prepared your bid on the Broadway Tunnel? A. Yes, generally.

(Testimony of Stephen Davidson Bechtel.)

Q. At that time, in preparing a bid on a project of some three and a half million dollars, you had in mind that the Claremont Tunnel was a good tunnel?

A. That was one of the considerations.

Q. You so assumed?

A. And I might comment on that, Mr. Tinning: that we had bid on that job; W. A. Bechtel had bid on that job; and bid within three or four or five per cent of the bid of Greer and Meade, who got the job; and, also, I had visited the tunnel; I had gone down, particularly in the east end of the tunnel, and I had seen the ground, myself, and I considered that portion of it very good ground condition.

Q. How far did you go into the east portal of the Claremont Tunnel?

A. Up to the face; as I say, at that time I cannot recall, Mr. Tinning, how far that was. It probably was several thousand feet.

Q. Several thousand feet. What formation was it in when you visited the face?

A. Well, I am not a geologist, and I wouldn't say the exact formation. I would consider it was in the Orindan.

Q. That was from the east portal?

A. Yes. [1057]

Q. That was on the east portal? A. Yes.

Q. When you were in the Claremont tunnel did you observe the section in this tunnel, where the excavation, forward of the excavation, was approximately 12 feet broad and 12 feet high, did you see

(Testimony of Stephen Davidson Bechtel.)

the sets in the Orindan formation where the timbers were crushed and the timber crews were constantly at work setting new timbers before the concrete lining was installed? A. No.

Q. Did you consider that ground self-supporting?

A. I was told at that time by the foreman on the job that the timbers had largely been placed as a matter of protection to the men.

Q. You were not able to judge from your own observation? A. No.

Q. The timber was left in, was it not?

A. I don't know. From hearsay I understand that it was.

Q. Didn't you know whether the timber was left in or not when you prepared your bid for the Broadway Tunnel? A. No.

Q. You did not bother about that?

A. I did not specially bother, some things you know and some things you don't know, I didn't know that.

Q. When you were applying for this 48-hour week in December of 1934, approximately six or seven months after you bid on the job, you referred to the Claremont Tunnel as one in which difficulties had occurred.

A. I understood they had difficulties.

Q. You had that tunnel in mind in making this application, and then you stated that you did not consider it a difficult tunnel when you were preparing your bid for this Broadway Tunnel.

(Testimony of Stephen Davidson Bechtel.)

A. Generally speaking that is correct.

Q. How do you reconcile the fact that you stated that it was a difficult tunnel when you were testifying before Mr. Reardon on December 4, 1934 with your statement now that when you were preparing the bid on the Broadway Tunnel that you did not consider [1058] the Claremont Tunnel a difficult tunnel?

A. Generally speaking, I considered it a good tunnel; there were spots in it which I understood from what others told me were difficult. We were in a bad portion of the Broadway Tunnel, we had 100 feet of it that had been exposed that was different from what we had anticipated, difficult and dangerous ground, and it was that our experience was based on; it was based on that experience that we prepared these letters. I had been out there once a week, and sometimes oftener than that, and observed the conditions which existed on the job at that time.

Q. Didn't you have a warning from the partial geological report that was in the possession of Six Companies, Mr. Calhoun, that shows hill creep and stream wash at the west portal of the tunnel?

A. Mr. Larson told me of that.

Q. So you had warning that you might expect difficulty getting underground?

A. At the portal, that is correct, but it was a question of degree, Mr. Tinning.

Q. Yes, it is all a question of degree?

A. Yes.

(Testimony of Stephen Davidson Bechtel.)

Q. The relative size of the tunnel was a very important matter with respect to strains and stresses that must be maintained by the timbers as you drive further, was it not? A. Yes.

Q. You so state in your letter, that in large tunnels difficulties increased very rapidly compared to the difficulty in small tunnels. A. That is true.

Q. You understood that? A. Yes.

Q. You knew that when you bid on the job?

A. Yes.

Q. Now, with respect to the Claremont Tunnel, which you say at the time you bid you considered to be a good tunnel, when on the 4th of December you testified as I read to you, I will call your attention to the next portion of your statement—you had pre- [1059] viously stated the Claremont tunnel, within a mile or so different conditions developed on both ends of the tunnel three miles long, that we have discussed, and I will now call your attention, after having said you considered this was good ground, there is very wet swelling ground and difficult ground, when you were testifying before Mr. Reardon on that date in respect to the Claremont Tunnel you thought that was bad ground, didn't you?

A. Which do you refer to?

Q. In the Claremont Tunnel.

A. That portions of it were, the portions that Mr. Larson had told me were, and having discussed that with Mr. Larson, and as we were involved in this labor situation at that time, obviously I drew

(Testimony of Stephen Davidson Bechtel.)

upon such information, we had expected some portion was good and we expected some bad ground, and difficult ground in the Broadway Tunnel, just as we had some in the Claremont Tunnel, and when I say the Claremont Tunnel is good, I do not say it is 100 per cent. good. When I say it is bad or difficult, or dangerous in either the Claremont or Broadway Tunnel, I do not mean it is 100 per cent. bad.

Q. So that when you were talking to Mr. Reardon and you said that you had records of bad tunnels, you were referring to tunnels in which some bad ground occurred and in other portions of which there was good ground? A. Yes.

Q. Now, then, when you were referring to the Sacramento Northern Tunnel, where you said the Sacramento Northern Tunnel presented a number of difficult conditions, you had in mind the history of that tunnel, did you not?

A. Well, as I understood it, Mr. Tinning.

Q. You were an expert in this work?

A. No, that is not correct.

Q. You were contracting to do a job in which you guaranteed and represented yourself to be an expert in this contract?

A. Being a contractor does not necessarily mean he is an expert [1060] in geology, or every part of the work he does, but generally speaking I was familiar with that tunnel.

Q. You were generally familiar with the type of work that you were undertaking for the Six Companies in driving this tunnel?

(Testimony of Stephen Davidson Bechtel.)

A. Generally speaking.

Q. And as such you had a general knowledge of the tunnels around in the bay region?

A. Some of them.

Q. And you knew from your general information that the Sacramento Northern Tunnel had presented a number of difficult conditions?

A. I understood that certain parts of the tunnel had been difficult.

Q. There had been slides in them?

A. I didn't know that.

Q. And caving? A. I didn't know that.

Q. Did you know that there had been one slide that made a great big chamber in the roof that required some 40 or 50 cords of wood to fill up before the tunnel could be concreted?

A. I don't recall that; I do remember that there was quite a bit of timbering, that the tunnel was timbered and not concreted, and had been standing for a good many years.

Q. Would you say when you bid on this Broadway Tunnel that the Sacramento Northern Tunnel was not concreted in part? A. How is that?

Q. Would you say that the Sacramento Northern Tunnel, which is about a mile away from the Broadway Tunnel, or two miles, which is shown on the exhibit, here, would you say that that tunnel was not concreted in part, in any section at the time that you prepared your bid and submitted it to this district? A. That is my understanding.

(Testimony of Stephen Davidson Bechtel.)

Q. That was your understanding? A. Yes.

Q. So that you would be in error if the fact appeared that a large part of that tunnel had been concreted long prior to May 22, 1934, when you prepared your bid?

A. No, because you say a large [1061] part of it; I did not say none of it was concreted. I believe some was and some was not, and some was timbered.

Q. The good ground was concreted and the bad ground was timbered? A. I don't know.

Q. You never inspected it? A. No.

Q. The next one, the Northern Pacific Tunnel through Niles Canon in the Coast Range Mountains was extremely difficult. The Northern Pacific Tunnel I believe we have agreed is the Western Pacific Tunnel, wasn't that built by your father?

A. No, it was not.

Q. Was your father's company connected with it?

A. I believe it was constructed by the Utah Construction Company, but I am not sure of that.

Q. You knew, however, that there had been great difficulties in constructing that tunnel?

A. I knew there had been some difficulties.

Q. You knew it took twice as long to construct?

A. I am not clear on that, whether it took twice as long to construct that tunnel or not, but what you have read was my information or understanding at that time.

Q. You also referred to the Hetch Hetchy Tunnel and you said in the Hetch Hetchy Tunnel there

(Testimony of Stephen Davidson Bechtel.)

was swelling and difficult hazardous ground experienced there. Now, the Hetch Hetchy Tunnels through the Coast Range were being constructed just previous to your putting in your bid, were they not?

A. I believe they were still under construction.

Q. Some of the equipment that was used in the driving of the Hetch Hetchy Tunnel was moved onto this job, was it not?

A. You are right on that.

Q. The compressors and some of this other equipment? A. Yes.

Q. You knew the conditions that had been encountered there, did you not, the heavy swelling ground?

A. There were parts where [1062] there was heavy swelling ground; there were some parts that were difficult and other parts were very good.

Q. You knew that?

A. I knew it, that parts of it had been difficult, and I also had heard that parts were very good.

Q. That is what you meant when you went on with the next statement:

> "Through those same mountains we have to construct this tunnel. In the Coast Range you get a different formation—no continuity."

That is what you mean, you were going to meet the same kind of conditions in your work here as they met in the Hetch Hetchy, some was heavy work and

(Testimony of Stephen Davidson Bechtel.)

some sections where the ground would support itself without great difficulty?

A. Yes, there is a possibility of that, some would be very difficult and some would be very good. However, we had contemplated and had figured on, and had bet our money on a condition which was apparent to us at the time from the geological report and from estimates which Mr. Larson made. That was the basis of that bid. Mr. Tinning, there is one thing one must keep in mind in estimating a tunnel, you have to take into consideration the particular job, you cannot make generalities, of course, on what happens some place else, or what happened one mile or five miles away from this particular job, and it is the assumptions and basis for assumptions and specifications and the conditions throughout that particular job that you have to analyze. You have to make your bases or assumptions from it, you have to make your cost of construction from that, and you make your bid from that, and that is what we did in this instance, and as we proceeded here the conditions were different, we recognized they were different, and when we came to this point there were difficulties that we tried to overcome, so that to make more progress, so that we should get the approval of the various changes I have referred to, to change [1063] from the 30-hour week to 40-hour week, so that we would get and hold good men and attract men from other parts of the State.

(Testimony of Stephen Davidson Bechtel.)

Q. Is this true, Mr. Bechtel, that in none of these documents which you have seen, which have been introduced in evidence, nor in the testimony before Mr. Reardon, that you never said at one single place that you had met any unanticipated conditions. That is true, is it not?

A. I might comment on that, that we are not discussing that point there, we thought it was of no moment. The purpose of this communication was to get a week of 40 hours, a week of 48 hours instead of 30, for the employment of men. That was the purpose of this discussion, that was the purpose of this meeting, of these minutes you have got there, and the letters.

Q. So that it is a fact, is it not, that in none of these communications to Mr. Reardon, or to the District, did you state that you had met any unanticipated conditions, although you had been working on the tunnel approximately, on the project about six months?

A. I do not believe that we did.

Mr. Tinning: The defendant offers in evidence a letter dated December 5, 1934, addressed to Hon. T. A. Reardon, Director of the Department of Industrial Relations, State Building, San Francisco, California, and signed by S. D. Bechtel, President. This is an amended or supplemental application or recital in connection with the hearing at which Mr. Bechtel testified on the preceding day. We offer this as Defendant's Exhibit W.

(Testimony of Stephen Davidson Bechtel.)

(The letter was marked "Defendant's Exhibit W.")

DEFENDANT'S EXHIBIT W

December 5, 1934

Honorable T. A. Reardon,
Director of the Department of
Industrial Relations,
State Building, San Francisco, California.

Dear Sir:

We have heretofore entered into a contract with Joint Highway District No. 13 of the State of California for the construction of the Broadway Low Level Tunnel Project. We respectfully request that you examine said project and determine, as to all underground operations in connection with the construction of the tunnels constituting a part of said project, that the application of the provisions of Section 653c-1 of the Penal Code of the State of California is impractical.

We request that, as to this portion of the project, we be permitted to operate on a 48-hour week in lieu of a 30-hour week. In making this request we desire to point out that the only matter involved here is the question of the hours of labor and that the wage scale provided for in our contract with the District will be fully complied with.

In carrying out our contract with the District it will be necessary for us to construct two twin

(Testimony of Stephen Davidson Bechtel.)

bores, each approximately 3,000 feet in length and 36 feet in diameter. These tunnels involve construction work of a hazardous and dangerous character. The safety of the men and the work largely depends upon the experience and ability of the tunnel men employed on the job. All concerned should take every possible step to minimize the dangers and assure the safety of the men.

The tunnel work has been closed down, the principal reason being our inability under existing restrictions, including the provisions of Section 653c-1 of the Penal Code, to procure an adequate supply of competent and experienced labor with which to construct the tunnels with any reasonable degree of safety to life and property.

Our inability to secure competent and experienced labor for the tunnel work arises out of the following conditions:

The tunnels are to be constructed through a part of the Coast Range mountains, which have a long history of difficult and dangerous tunnel construction, due in part to the constantly varying geological formations which are encountered in tunnel work in this range. Our own experience to date on the present project, indicating the presence of soft ground rather than hard rock, combined with the knowledge that the tunnels will cross the line of the Wildcat Fault,

(Testimony of Stephen Davidson Bechtel.)

make it imperative that we anticipate similar difficulty on this job and organize and prepare plans and methods, including adequate supervision and an experienced and versatile working organization, which will enable us to cope with the conditions which we will probably encounter. The size of the tunnels which we are constructing, involving hazards many times greater than those of smaller tunnels constructed nearby, make their construction a dangerous operation and make such precautions absolutely essential.

We have taken all possible steps to be in a position to meet the conditions which we foresee, but without an adequate supply of experienced tunnel men the progress and safety of the project and the safety of human life will be seriously endangered. Improper timbering or blasting, improper performance of the other required operations, or the inability adequately to meet an emergency will inevitably endanger the lives of all the men working in the tunnels and may result in a serious catastrophe. It is impossible, of course, to give minute supervision to the details of the work each man is doing and it is therefore essential that only experienced and competent men be placed on the work. We must have men experienced in soft and wet tunnel construction, as well as men experienced in the construction of large diameter tunnels.

The number of available competent men has been reduced because of the large amount of

(Testimony of Stephen Davidson Bechtel.)

tunnel and mining work being performed in the West at the present time. Unless the determination herein requested is made by you, it will be necessary for us to continue our tunnel operations on a 30-hour week while men employed on the other work are permitted to work much longer hours, running as high as 60% in excess of our maximum, and resulting in increased weekly earnings amounting in some cases to 50% more than the earnings of our men, although the hourly rate of pay is the same or less than ours.

Our experience in the last three months has indicated that we cannot obtain for or hold on this job a sufficient number of qualified and experienced tunnel men unless the existing restriction on the hours of work per week is relaxed so that we may employ men on a basis comparable to that prevailing elsewhere. During the past several months the National Reemployment Service, the agency through which under the provisions of our contract we are obtaining our supply of labor, has conscientiously endeavored to supply us with tunnel men suitable for this job. However, despite the efforts of this agency, we have been able to date to obtain, out of the 230 men furnished to us, only about 30 experienced tunnel men really properly qualified for this work, although we have retained on call approximately 97 men, many of whom are lacking in qualifications and proper experi-

(Testimony of Stephen Davidson Bechtel.)

ence. The remainder of the 230 have either been discharged because of unfitness, as non-citizens, as physically unfit, have quit for other or better jobs, or have been reduced to lower classifications. From this you will observe that the labor turnover has been exorbitant, which tends to increase the hazards.

In addition to the men who have already been supplied there are, we understand, approximately 200 other men who have registered with the National Reemployment Service as tunnel men. From our experience to date we cannot expect to procure and hold, out of this available supply, a sufficient number of competent and experienced tunnel men with which to proceed satisfactorily and safely with the work involved unless we are permitted to work our tunnel crews on a 48-hour week. We believe, therefore, that the tunnel work should not be reopened until the present restriction of 30 hours per week is modified so as to eliminate unnecessary hazards to the men. We feel that in order to protect the project and the lives of the men working on it, this restriction must necessarily be modified so as to permit a 48-hour week for men working underground.

Such modification would affect the following classifications of men performing work underground:

(Testimony of Stephen Davidson Bechtel.)

Tunnel Shifters
Tunnel Miners
Tunnel Timbermen
Tunnel Shovel Operators
Tunnel Locomotive Operators
Tunnel Hoist Men
Tunnel Powdermen
Tunnel Brakemen
Tunnel Chuck Tender
Tunnel Mechanics
Tunnel Laborers
Tunnel Muckers
Tunnel Vibrators
Tunnel Tampers
Tunnel Form Men
Tunnel Concrete Men
Tunnel Concrete Finishers
Tunnel Cement Gun Operators
Tunnel Pump Men
Tunnel Concrete Laborers
Tunnel Drill Operators
Tunnel Electrical Workers
Tunnel Labor—Unskilled
Tunnel Plumbers
Tunnel Portable Hoist Engineers
Tunnel Power Shovel Operators
Tunnel Track Men

In addition, men falling in a few other classifications would be affected during those periods of time in which their principal duties would be

(Testimony of Stephen Davidson Bechtel.)

in connection with the underground portions of the project. All men subject to the modification would be carried on a separate payroll in order to minimize the possibility of confusion, incorrect classification or other mistakes.

As noted above, no changes in rates of pay, classifications, overtime provisions or other conditions affecting the men are requested or will be made.

In conclusion, may we reiterate our belief that the determination requested herein is absolutely necessary in order to safeguard the lives of our employees and to insure the completion of the project in a proper manner. We request that you examine the Broadway Low Level Tunnel Project and determine that, as to the underground portions in connection with the construction of the tunnels, the application of the provisions of Section 653c-1 is impractical and that a 48-hour week be authorized for such work.

Respectfully yours,
SIX COMPANIES OF
CALIFORNIA,
By S. D. BECHTEL,
President.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. W. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(Testimony of Stephen Davidson Bechtel.)

Gentlemen, I also wish to offer a letter from the Six Companies, signed by Mr. Bechtel, to the Board of Directors, dated December 5, 1934, which would be apparently the supplemental application with respect to the 30-hour week, that paralleled the one that he had filed with Mr. Reardon. [1064]

Mr. Marrin: No objection.

Mr. Tinning: If your Honor please, we offer a letter signed by Mr. Bechtel as President of the Six Companies of California, addressed to the Board of Directors Joint Highway District No. 13 of the State of California, dated December 5, 1934, and ask that it be admitted in evidence as Defendant's Exhibit in proper order.

(The letter was marked "Defendant's Exhibit X.")

DEFENDANT'S EXHIBIT X

Builders of Low Level Broadway Tunnel
Six Companies of California
155 Sansome Street
San Francisco, Calif.

December 5, 1934

Board of Directors,
Joint Highway District
No. 13 of the State of California,
1448 Webster Street,
Oakland, California.

Gentlemen:

The Broadway Low Level Tunnel Project involves construction work of a hazardous and

(Testimony of Stephen Davidson Bechtel.)

dangerous character. The safety of the men and the work largely depends upon the experience and ability of the tunnel men employed on the job. All concerned should take every possible step necessary to minimize the dangers and assure the safety of the men.

The tunnel work has been closed down, the principal reason being our inability, under existing restrictions in our contract and existing regulations in connection with the employment of labor, to procure an adequate supply of competent and experienced labor with which to construct the tunnels with any reasonable degree of safety to life and property.

Our inability to secure competent and experienced labor for the tunnel work arises out of the following conditions:

The tunnels are to be constructed through a part of the Coast Range mountains, which have a long history of difficult and dangerous tunnel construction, due in part to the constantly varying geological formations which are encountered in tunnel work in this range. Our own experience to date on the present project, indicating the presence of soft ground rather than hard rock, combined with the knowledge that the tunnels will cross the line of the Wildcat Fault, make it imperative that we anticipate similar difficulty on this job and organize and prepare plans and methods, including adequate super-

(Testimony of Stephen Davidson Bechtel.)

vision and an experienced and versatile working organization, which will enable us to cope with the conditions which we will probably encounter. The size of the tunnels which we are constructing, involving hazards many times greater than those of smaller tunnels constructed nearby, make their construction a dangerous operation and make such precautions absolutely essential.

We have taken all possible steps to be in a position to meet the conditions which we foresee, but without an adequate supply of experienced tunnel men the progress and safety of the project and the safety of human life will be seriously endangered. Improper timbering or blasting, improper performance of the other required operations, or the inability adequately to meet an emergency will inevitably endanger the lives of all the men working in the tunnels and may result in a serious catastrophe. It is impossible, of course, to give minute supervision to the details of the work each man is doing and it is therefore essential that only experienced and competent men be placed on the work. We must have men experienced in soft and wet tunnel construction, as well as men experienced in the construction of large diameter tunnels.

The number of available competent men has been reduced because of the large amount of tunnel and mining work being performed in the West at the present time. While under the pro-

(Testimony of Stephen Davidson Bechtel.)

visions of our contract we are restricted to a 30-hour week, men are permitted to work much longer hours, running as high as 60% in excess of our maximum, on the other work, resulting in increased weekly earnings amounting in some cases to 50% more than the earnings of our men, although the hourly rate of pay is the same or less than ours.

Our experience in the last three months has indicated that we cannot obtain for or hold on this job a sufficient number of qualified and experienced tunnel men unless the existing restriction on the hours of work per week is relaxed so that we may employ men on a basis comparable to that prevailing elsewhere. During the past several months the National Reemployment Service, the agency through which under the provisions of our contract we are obtaining our supply of labor, has conscientiously endeavored to supply us with tunnel men suitable for this job. However, despite the efforts of this agency, we have been able to date to obtain, out of the 230 men furnished to us, only about 30 experienced tunnel men really properly qualified for this work, although we have retained on call approximately 97 men, many of whom are lacking in qualifications and proper experience. The remainder of the 230 have either been discharged because of unfitness, as non-citizens, as physically unfit, have

(Testimony of Stephen Davidson Bechtel.)

quit for other or better jobs, or have been reduced to lower classifications. From this you will observe that the labor turnover has been exorbitant, which tends to increase the hazards.

In addition to the men who have already been supplied there are, we understand, approximately 200 other men who have registered with the National Reemployment Service as tunnel men. From our experience to date we cannot expect to procure and hold, out of this available supply, a sufficient number of competent and experienced tunnel men with which to proceed satisfactorily and safely with the work involved unless we are permitted to work our tunnel crews on a 48-hour week and unless we are given a more practical and satisfactory manner of procuring men.

We believe, therefore, that the tunnel work should not be reopened until the present restrictions and regulations as to employment of labor are modified so as to eliminate unnecessary hazards to the men. We feel that in order to protect the project and the lives of the men working on it, the present conditions of our contract restricting the hours of labor must necessarily be modified so as to permit a 48-hour week for men working underground.

Such a modification would affect the following classifications of men perfoming work underground:

(Testimony of Stephen Davidson Bechtel.)

Tunnel Shifters
Tunnel Miners
Tunnel Timbermen
Tunnel Shovel Operators
Tunnel Locomotive Operators
Tunnel Hoist Men
Tunnel Powdermen
Tunnel Brakemen
Tunnel Chuck Tender
Tunnel Mechanics
Tunnel Laborers
Tunnel Muckers
Tunnel Vibrators
Tunnel Tampers
Tunnel Form Men
Tunnel Concrete Men
Tunnel Concrete Finishers
Tunnel Cement Gun Operators
Tunnel Pump Men
Tunnel Concrete Laborers
Tunnel Drill Operators
Tunnel Electrical Workers
Tunnel Labor—Unskilled
Tunnel Plumbers
Tunnel Portable Hoist Engineers
Tunnel Shovel Operators
Tunnel Track Men

In addition, men falling in a few other classifications would be affected during those periods of time in which their principal duties would be

(Testimony of Stephen Davidson Bechtel.)

in connection with the underground portions of the project. All men subject to the modification would be carried on a separate payroll in order to minimize the possibility of confusion, incorrect classification or other mistakes.

No changes in rate of pay, classifications, overtime provisions or other conditions affecting the men are requested or will be made.

In conclusion, may we reiterate our belief that the modification requested herein is absolutely necessary in order to safeguard the lives of our employees and to insure the completion of the project in a proper manner. We respectfully request that you immediately take such action as may be appropriate to permit us to carry on our underground operations on the Broadway Low Level Tunnel Project on a 48-hour week.

Respectfully yours,
SIX COMPANIES OF
CALIFORNIA,
By (Signed) S. D. BECHTEL,
President.

SDB:DP

[Endorsed]: Received Dec. 6, 1934. Joint Highway Dist. No. 13. L. V. Eaton, Ass't Secretary.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. *Plff's* Ex. X. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(Testimony of Stephen Davidson Bechtel.)

And the record should show that this is a supplemental application that the Six Companies made to the Joint Highway District respecting the 48-hour week filed the day after the hearing in San Francisco.

Q. Mr. Bechtel, I would like you to look at Exhibit X, which has just been introduced in evidence, which is a copy of your letter dated December 5, 1934, and I will ask you to look at the last paragraph on the first page, where you state:

> "The tunnels are to be constructed through a part of the Coast Range mountains, which have a long history of difficult and dangerous tunnel construction, due in part to the constantly varying geological formations which are encountered in tunnel work in this range. Our own experience to date on the present project, indicating the presence of soft ground rather than hard rock, combined with the knowledge that the tunnels will cross the line of the Wildcat Fault, make it imperative that we anticipate similar difficulty on this job and organize and prepare plans and methods, including adequate supervision and an experienced and versatile working organization, which will enable us to cope with the conditions which we will probably encounter. The size of the tunnels which we are constructing, involving hazards many times greater than those of smaller tunnels constructed nearby, make their

(Testimony of Stephen Davidson Bechtel.)

construction a dangerous operation and make such precautions absolutely essential." [1065]

Now, Mr. Bechtel, when you wrote that letter and were referring to smaller tunnels constructed nearby, you knew that the difficulties that you anticipated in this tunnel were greater than those anticipated in driving through the Claremont Tunnel, didn't you?

A. I am not quite sure of your point.

Q. Read the question.

(Question repeated by the reporter.)

A. Yes.

Q. And when you were referring, when you were discussing the testimony before Mr. Reardon submitted on the previous day to this letter you stated that you expected at the time you testified, on the 4th of December, that you soon would emerge into conditions that would be good or better than any you had encountered. When you wrote this letter on the 5th of December, 1934 you stated that you expected difficult conditions, so as a matter of fact you were expecting exactly what you found there, weren't you?

A. Yes, immediately in front of where we were, we expected bad ground conditions, for the reason that we had wound up these drifts, ended these drifts in formation that had continued to be bad; we did not know how much further we would find it, and we always had the hope that we would get into the better ground which had been prophesied in the

(Testimony of Stephen Davidson Bechtel.)

geological report and on which we had predicated our plans and estimates of construction on, and we were preparing for that worst condition, we were preparing so that we could adequately and competently meet the conditions if it did continue difficult.

Q. You stated that:

"Our own experience to date on the present project, indicating the presence of soft ground rather than hard rock, combined with the knowledge that the tunnels will cross the line of the Wildcat Fault, make it imperative that we anticipate similar [1066] difficulty on this job, and organize and prepare plans and methods."

A. Yes.

Q. You were referring, when you wrote that sentence, to the preceding portion of the paragraph in which you say that the tunnels which had been constructed through a part of the Coast Range Mountains, and these are to be constructed through a part of the Coast Range Mountains, which have a long history of difficult and dangerous tunnel construction—that is what you were referring to, was it not, what you meant in answering my question before you heard about the geological report?

A. I do not think that can be answered "Yes" or "No."

Q. Well, now, let me see if we can get clear on that. In your first sentence of this exhibit you state

(Testimony of Stephen Davidson Bechtel.)

—I am referring now to Exhibit X—the first sentence in paragraph 4 on the first page you state: "The tunnels are to be constructed through a part of the Coast Range of mountains"—you are referring to the Broadway Tunnel there, aren't you?

A. Yes.

Q. "which have a long history of difficult and dangerous tunnel construction"—that refers to the Coast Range of mountains, does it not?

A. Yes.

Q. "due in part to the constantly varying geological formations which are encountered in tunnel work in this range." A. Yes.

Q. You were referring to the geological conditions which were encountered in tunnel work in the Coast Range Mountains?

A. Yes. And that must be tide together with the other parts of the letter, be considered, in order to get an intelligent reflection of what we were presenting here, which was the purpose of the other letter, the other parts of the letter, and the subsequent parts of that paragraph.

Q. All right. "Our own experience to date on the present project, indicating the presence of soft ground rather than hard [1067] rock"—that was your own experience, indicating the presence of soft ground rather than hard rock?

A. Yes. Up to that time we had experienced soft ground instead of hard rock.

Q. "combined with the knowledge that the tun-

(Testimony of Stephen Davidson Bechtel.)

nels will cross the line of the Wildcat Fault''—you are referring to the Broadway Tunnel crossing the Wildcat Fault, in your experience?

A. Yes, the inference—it refers to the Wildcat Fault going through, our deduction from the geological report prepared by Louderback; that is where the information came from, that is where the deduction was made from, and that is what we were still hoping we would get, better ground rather than soft ground; the Wildcat Fault was some place in the middle of the hill, or ahead of us, and provide for conditions so as to meet that condition we had hoped to in between.

Q. And those conditions—your own experience indicating the presence of soft ground rather than hard rock, and the anticipation that you would cross Wildcat Fault, make it imperative that we anticipate similar difficulty on this job—the similar difficulty that you refer to is the difficulty of long history of difficult and dangerous tunnel construction, is it not?

A. Yes, on part of several of these tunnels that have been referred to, on the Hetch Hetchy Tunnels, parts of them were difficult, on parts of the Claremont Tunnel they were difficult, at the same time parts of both the Hetch Hetchy Tunnel and the Claremont Tunnel, and other tunnels in that area had been good, and you have to weigh those things in order to get the real situation in any degree.

Mr. Tinning: Gentlemen, we wish to introduce a copy of order of the Industrial Accident Commis-

(Testimony of Stephen Davidson Bechtel.)

sion, dated the 5th day of December, 1934, subject to your check, but it is a copy. [1068]

Mr. Marrin: Yes.

Mr. Tinning: Under which letter a 40-hour week was granted. If your Honor please, without reading it, we offer in evidence the order of the Department of Industrial Relations of the State of California, dated December 5, 1934, authorizing the contractor to employ men on the Broadway Tunnel in accordance with its application 40 hours per week, and ask that the same be marked "Defendant's Exhibit Y."

(The document was marked "Defendant's Exhibit Y.")

DEFENDANT'S EXHIBIT Y

Before the Department of Industrial Relations of the State of California

In the matter of the petition of the Six Companies of California concerning work being performed under contract with Joint Highway District No. 13 of the State of California for the construction of the Broadway Low Level Tunnel Project.

ORDER

This matter coming on to be considered upon the petition of the Six Companies of California to exempt from the provisions of Section 653c-1 of the Penal Code, work connected with the

(Testimony of Stephen Davidson Bechtel.)

contract between the said Six Companies of California and the Joint Highway District No. 13 of the State of California, for the construction of the Broadway Low Level Tunnel Project, and it further appearing that the construction work provided for in said contract is of a hazardous and dangerous character and that the safety of the men and the work largely depends upon the experience and ability of tunnelmen employed on the job, and it further appearing that all concerned should take every possible step to minimize the dangers and assure the safety of the men employed in the said undertaking, and further acting upon my own knowledge of the matters and things in said petition set forth.

I, T. A. Reardon, as Director of the Department of Industrial Relations, by virtue of the authority in me vested, hereby find that such petition should be granted.

Accordingly it is determined that the application of the provisions of the present 30 hour week law as contained in an act adding a new section to the Penal Code of California to be numbered section 653c-1 is impractical as to those employed in the tunnel work and that the said petitioner be and it is hereby permitted to employ men in the work herein described for a period not to exceed 48 hours in each week.

This determination is subject to such re-

(Testimony of Stephen Davidson Bechtel.)

vision or modification as future economic conditions may justify.

[Seal] (Signed) T. A. REARDON,
Director.

Dated at San Francisco, California, on this 5th day of December, 1934.

State of California,
City and County of San Francisco—ss.

I, Lulu P. Loveland, a Notary Public in and for the City and County of San Francisco, State of California, residing therein, duly commissioned and sworn, do certify that on this 5th day of December, 1934, I carefully compared the annexed copy of order re: in the matter of petition of Six Companies of California concerning work being performed under Contract with Joint Highway District No. 13 of the State of California—construction of Broadway Low Level Tunnel Project, signature T. A. Reardon, Director with the original thereof, now in the possession of Six Companies of California of San Francisco, State of California, and that the same a full, true, and exact copy of said original.

In witness whereof, I have hereunto set my hand and affixed my official seal at my office in the City and county of San Francisco, the

(Testimony of Stephen Davidson Bechtel.)

day and year in this certificate first above written.

LULU P. LOVELAND,

[Not'l Seal]

Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires December 8, 1934.

(Certificate of Notary to Copy of Document.)

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. Y. Filed April 26, 1938. Walter B. Maling Clerk. By J. A. Schaertzer, Deputy Clerk.

If your Honor please, we now offer in evidence a letter from the United States Department of Agriculture, Bureau of Public Roads, District No. 2, dated December 19, 1934, addressed to Wallace B. Boggs, District Engineer, authorizing the contractor on this project to work men on the underground work 40 hours per week. We ask that the authority to the District dated December 19, 1934 be marked Defendant's Exhibit Z.

(The document was marked "Defendant's Exhibit Z.")

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT Z

United States Department of Agriculture
Bureau of Public Roads
District No. 2
Phone: Sutter 3861,
461 Market St.,
San Francisco, California.

December 19, 1934.

In your reply please refer to File No.
Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Dear Sir:

On December 10, 1934, I received from the Secretary of Joint Highway District No. 13 of the State of California a letter dated December 8 enclosing four certified copies of the application of Six Companies of California, a corporation, the contractor now constructing the project of Joint Highway District No. 13 of the State of California, known as the "Broadway Low Level Tunnel," for a waiver of the provisions of Subsection (b) of Section 1 of Paragraph 20 of the contract to permit said contractor to employ men in the tunnel work not exceeding 48 hours per week, together with

(Testimony of Stephen Davidson Bechtel.)

four certified copies of the resolution of the Board of Directors directing that said application be submitted to the United States Bureau of Public Roads, the Government Engineer under the terms of said contract, for such action as the Government Engineer may consider proper. The Secretary requested me to advise you of my action in respect to said application.

After considering the application of Six Companies of California; the order of T. A. Reardon, Director of the Department of Industrial Relations of California, permitting Six Companies to employ men on tunnel work on the construction of the Broadway Low Level Tunnel not to exceed 48 hours in each week; and letter from R. C. Stillwell, Veterans' Representative, State of California, dated December 10, acting for Mr. John A. Stellern, State Director of the National Reemployment Service, State of California, copy of which is enclosed; Mr. Stellern's letter dated December 15, concurring in Mr. Stillwell's letter, copy enclosed; and after further investigation by the Bureau of Public Roads it is in my judgment not practicable nor feasible, particularly considering safety of workmen, to proceed with the tunnel work on a thirty (30) hour per week basis. Under no circumstances, however, can forty-eight (48) hours per week be granted, but you are authorized to waive the provisions of Sub-

(Testimony of Stephen Davidson Bechtel.)

section (b) of Section (1) of Paragraph 20 of the contract dated June 4, 1934 between Joint Highway District No. 13 of the State of California and Six Companies of California, contractor, and permit the contractor to employ men on tunnel work not to exceed forty (40) hours in any one week, nor more than eight (8) hours in any one day.

If satisfactory as to details the following classification of men performing work in the tunnel as submitted in the application of Six Companies of California, should be adopted and these men should be carried on a separate payroll:

Tunnel Shifters
Tunnel Miners
Tunnel Timbermen
Tunnel Shovel Operators
Tunnel Locomotive Operators
Tunnel Hoist Men
Tunnel Powdermen
Tunnel Brakemen
Tunnel Chuck Tender
Tunnel Mechanics
Tunnel Laborers
Tunnel Muckers
Tunnel Vibrators
Tunnel Tampers
Tunnel Form Men
Tunnel Concrete Men

(Testimony of Stephen Davidson Bechtel.)

Tunnel Concrete Finishers
Tunnel Cement Gun Operators
Tunnel Pump Men
Tunnel Concrete Laborers
Tunnel Drill Operators
Tunnel Electrical Workers
Tunnel Labor—Unskilled
Tunnel Plumbers
Tunnel Portable Hoist Engineers
Tunnel Power Shovel Operators
Tunnel Track Men.

Yours very truly,

(Signed) C. H. SWEETSER,
District Engineer.

[Endorsed]: Received Dec. 20, 1934. Joint Highway District No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. Z. Filed April 26, 1938. Walter B. Maling Clerk. By J. A. Schaertzer, Deputy Clerk.

I offer now in evidence a letter dated December 27, 1934, addressed to Six Companies of California, by Joint Highway District No. 13 of the State of California, signed by Thomas E. Caldecott, President, and by Harry M. Stow, Secretary, to which is attached a copy of Mr. Sweetser's letter of December 19, 1934, this letter being the authority to Six Companies of California to employ men on the tunnel project 40 hours per week, according to their

(Testimony of Stephen Davidson Bechtel.)

application for 48, and the authority received from the Bureau of Public Roads to employ the men 40 hours a week. I think it is proper to make the statement at this time that on this work—I am sure counsel will agree with me, so there is no reason for spending time on it, the P.W.A., the Public Works Emergency Administration who made the grant in this matter, turned [1069] over all road projects to the Bureau of Public Roads of the Department of Agriculture, and made the District Engineer of the Bureau of Public Roads officiate in the same way as the State Engineer, P.W.A., officiates in all other P.W.A. projects, so that throughout this case if the matter comes up this P.W.A., the Bureau of Public Roads, the term is synonymous, that the District Engineer of the Bureau of Public Roads was the State Engineer to promulgate all of the P.W.A. regulations through the district, and the contractor and the one whom the contractor and the district had to keep in contact with on the work under this project.

(The letter was marked "Defendant's Exhibit AA.")

[Set forth in the Book of Exhibits at page 377.]

[1070]

Mr. Tinning: If your Honor please we offer in evidence a letter from Six Companies of California dated December 26, 1934, signed by T. M. Price, Project Manager. We ask that it be marked in evidence as Defendant's Exhibit "BB."

(Testimony of Stephen Davidson Bechtel.)

(The letter was marked "Defendant's Exhibit BB.")

Mr. Trefethen: To whom is that addressed, Mr. Tinning?

Mr. Tinning: That is addressed to Wallace B. Boggs, District Engineer.

[Set forth in the Book of Exhibits at page 382.]

[1071]

Q. Mr. Bechtel, prior to December 26, 1934, was there ever any communication from Six Companies of California to the District respecting engineering, so far as you know?

A. So far as I know, there was not.

Q. This was the first communication on that subject?

A. There may have been some; but, so far as I know, there was not.

Mr. Tinning: If the Court please, we offer, as Defendant's Exhibit "CC," a letter from Mr. Wallace B. Boggs, District Engineer, addressed to Six Companies of California, in reply to the preceding exhibit. I might state to your Honor that last week Mr. Marrin adopted a subject, methods of engineering, and different subjects that he had; and we are attempting to put in our exhibits in chronological order, so that, by dates, as the drama develops, we will have a complete history as we go along.

(The letter was marked "Defendant's Exhibit CC.")

Mr. Tinning: This letter reads as follows:

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT CC

January 3, 1935.

File: Broadway Tunnel.
Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

Your communication of December 26, 1934, with blue prints attached, and referring to tunnel excavation methods, is acknowledged. It is my understanding that the methods shown and described are subject to such changes as may be necessary to meet ground conditions.

With respect to your outline of engineering work which you desire the District to perform in connection with the establishment of lines and grades, I wish to advise you that the District Engineer will continue to establish lines and grades on a single base line in each tunnel, and that any additional points which your working crews require should be furnished by your own engineering organization as required by the specifications.

Yours very truly,
(Signed) W. B. BOGGS,
District Engineer.

WBB:VE

(Testimony of Stephen Davidson Bechtel.)

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. CC. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1073]

Mr. Tinning: I offer in evidence, your Honor, as Defendant's "DD," a letter dated January 9, 1935, from Wallace B. Boggs, District Engineer, to Six Companies of California.

(The letter was marked "Defendant's Exhibit DD.")

Mr. Tinning: I will read this letter:

DEFENDANT'S EXHIBIT DD

January 9, 1935.

File: Broadway Tunnel Schedule.

Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.
Attention of Mr. T. M. Price, Project Manager

Dear Sir:

In confirmation of our conversation of January 5 with respect to postponement of work on certain structures, you are advised as follows:

Conditions are unfavorable for work on the Golden Gate Overhead Structure due to the fact that the footing excavations which were

(Testimony of Stephen Davidson Bechtel.)

opened up more than a month ago have been damaged by exposure to heavy rainfall. It will not be feasible to proceed with the completion of these footings until the rainy season is over and the damage can be satisfactorily repaired.

It is not advisable to start footing excavations on the Landvale Overhead and Viaduct structures until the rainy season is over. Conditions similar to those now existing on the Golden Gate Overhead Structure will undoubtedly result if these excavations were made and exposed to the rainy weather which may reasonably be anticipated.

The right-hand Service Road walls at the West Portal southerly from the South buttress of the Portal Buildings cannot be constructed until the fills which have been necessary on account of excessive excavation shall have been thoroughly consolidated and no longer subject to settlement.

Reference is made to Section 6, Subsection (r) "Temporary Suspension of Work" of the specifications, and you are directed that work on the above structures shall not proceed until conditions are considered favorable by the District Engineer. Such postponement shall not constitute a basis for any extension of time for the completion of the contract.

(Testimony of Stephen Davidson Bechtel.)

It is noted that the schedule submitted by you in August, 1934, contemplated the completion of these units by December 1, 1934; if such progress had been made, the conditions now existing with respect to the Golden Gate and Landvale structures could probably have been avoided.

Very truly yours,

(Signed) WALLACE B. BOGGS,
District Engineer.

WBB/VE

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex DD. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1074]

Mr. Tinning: Q. Mr. Bechtel, simply for the purpose of showing where these other structures were, the Landvale structures were cement structures, to be encountered for an overpass over the main highway where the north and south route intersects the east and west route? A. Yes.

Q. That is the general description. And, at that point, there was [1075] a subway constructed for the railroad, and there was also an overhead viaduct, which ran across the main line of the highway, to carry the north and south traffic there?

A. Yes.

Q. The Golden Gate structure was a bridge down near the westerly end of the project where it crossed a deep ravine,—rather heavy bridge—

(Testimony of Stephen Davidson Bechtel.)

A. It was over an existing street.

Q. —over an existing street, where there was a valley and a street running down?

A. This was not in the valley; it was the valley —the easterly side of the valley.

Mr. Tinning: We offer in evidence, on behalf of the defendant, as Defendant's Exhibit "EE," a letter signed by Six Companies of California, S. D. Bechtel, President, addressed to Joint Highway District, dated January 12, 1935, in reply to Mr. Boggs' letter, which was the previous exhibit,—January 12, 1935—

Well, your Honor, I would like to withdraw the offer and have an order so made; this letter is the same as Mr. Marrin and Mr. Smith put in last week,—Plaintiff's Exhibit No. 53; so we now have the continuity of the record. The letter referred to, Plaintiff's Exhibit No. 53, is already in evidence,—the reply of Six Companies to Mr. Boggs' letter with respect to the outside work; so we will withdraw the last exhibit.

The Court: We will take a recess for five minutes.

(Recess.) [1076]

Mr. Tinning: If your Honor please, we offer in evidence a letter dated January 18, 1935, sent by Six Companies of California, T. M. Price, Project Manager, to Wallace B. Boggs, District Engineer,

(Testimony of Stephen Davidson Bechtel.)

and ask that it be marked in proper order, which I think is EE.

(The letter was marked "Defendant's Exhibit EE.")

I will read it:

DEFENDANT'S EXHIBIT EE

Builders of Low Level Broadway Tunnel.
Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.

January 18, 1935.

(Received Jan. 19, 1935, Joint Highway Dist. No. 13)

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Dear Sir:

We wish to acknowledge your letter of January 9th, directing us to suspend operations on certain structures until conditions are considered favorable by the District Engineer.

This is entirely satisfactory with us. However, we note that you state that such postponement shall not constitute a basis for any extension of time for the completion of the contract. We would like to ask your reconsidera-

(Testimony of Stephen Davidson Bechtel.)

tion of this, in accordance with Paragraph C, Section 4 of the Specifications, wherein it is stated that if stormy or inclement weather unavoidably delays the work such time shall be added to the aforesaid time for completion.

We are not certain that we will need such an extension. However, the grading of the road is being held up subject to completion of the structures and if the grading is delay in the summer of 1935 to a date that will make it impractical to lay the oil surfacing, it might be advisable to postpone such surfacing until the spring of 1936.

Under such a condition, we believe that a request for extension of time on this account would be in order.

Yours very truly,
SIX COMPANIES OF
CALIFORNIA,
(Signed) By T. M. PRICE,
Project Manager.

[Endorsed]: Received Jan. 19, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. EE. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1077]

(Testimony of Stephen Davidson Bechtel.)

The next in chronological order is a letter that was introduced as Plaintiff's Exhibit No. 54, from Mr. Boggs to the Six Companies, and for the purpose of continuity we will refer to it. It was a letter dated January 22, 1935, in which Mr. Boggs says he was unable to agree with Six Companies' contention respecting engineering lines and grades.

Defendant offers as Defendants' Exhibit FF a letter from Mr. Boggs, District Engineer, to Six Companies of California, dated January 23, 1935, which reads as follows:

DEFENDANT'S EXHIBIT FF

January 23, 1935.

File: Broadway Tunnel Extension,
Schedule Time.
Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

Your communication of January 18, 1935, with reference to the suspending of operations on certain structures, is acknowledged.

With respect to your request for reconsideration of the decision of the District Engineer that the above suspension should not constitute a basis for extension of time for completion of the project, you are advised as follows:

(Testimony of Stephen Davidson Bechtel.)

The structures upon which work is temporarily suspended are along the West Approach roadways and connections. The time required to complete these units is relatively short, as indicated on your submitted schedule; related work, which cannot be performed until these structures are completed, is small, and would not require any considerable time for performance. Other phases of the work, upon which the time of completion of these structures can have no bearing, would seem to be the controlling factors with respect to completion of the Contract on schedule time; these other phases are not affected by the suspension order.

Therefore, it does not appear that the suspension ordered by the District Engineer can in any way constitute a basis for the granting of an extension of time for the completion of the project.

Yours very truly,

(Signed) WALLACE B. BOGGS,
District Engineer.

WBB/VE

CC to Mr. Archibald B. Tinning, Attorney, Martinez.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. FF. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1078]

(The letter was marked "Defendant's Exhibit FF.")

(Testimony of Stephen Davidson Bechtel.)

If your Honor please, Defendant offers in evidence a letter dated January 24, 1935, from Six Companies of California, signed by T. M. Price, Progress Manager, addressed to Wallace B. Boggs, District Engineer, as Defendant's Exhibit GG.

(The document was marked "Defendant's Exhibit GG.")

DEFENDANT'S EXHIBIT GG

Builders of Low Level Broadway Tunnel
Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.

January 24, 1935.

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Dear Mr. Boggs:

Acknowledging your letter of January 23rd, relative to extension of time on account of suspending operations on certain structures.

We do not mean our previous letter to be an application for extension of time but wish merely to call your attention to the paragraph of the Specifications governing this.

We merely wish to put ourselves on record in the matter with the thought that actual decision as to extension might be made at the time

(Testimony of Stephen Davidson Bechtel.)

application is made if decided necessary and provided by the specifications.

Yours very truly,
SIX COMPANIES OF
CALIFORNIA,
By (Signed) T. M. PRICE,
Project Manager,

[Endorsed]: Received January 25, 1935. Joint Highway District No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. GG. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

If your Honor please, Defendant offers in evidence as Defendant's Exhibit HH the letter dated February 5, 1935, from Wallace B. Boggs, District Engineer, to Six Companies of California, which reads as follows:[1079]

DEFENDANT'S EXHIBIT HH

February 5, 1935.

File: Broadway Tunnel
Schedule of construction.

Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

A construction schedule showing anticipated progress on various sections of the work was

(Testimony of Stephen Davidson Bechtel.)

submitted by you on August 9, 1934.

An examination of this schedule at the present time shows that the progress indicated thereon has not been maintained, especially with respect to the tunnel, which would appear to be the controlling factor in completing the Contract within the specified time.

You are hereby requested to submit immediately a revised construction schedule indicating the progress you expect to maintain on the various units of the work.

Kindly submit this schedule in triplicate.

Very truly yours,

(Signed) WALLACE B. BOGGS,
District Engineer.

WBB/VE

CC to Mr. C. H. Sweetser, District Engineer, U. S. Bureau of Public Roads, S. F.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. HH. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit HH.")

There has already been introduced in evidence as Defendant's Exhibit O a schedule showing the proposed rate of progress on this work which was submitted to the district by Six Companies of California, with its letter of February 12, 1935. I am

(Testimony of Stephen Davidson Bechtel.)

going to ask some questions about that, Mr. Bechtel. Would you like to have the exhibit before you?

A. Yes.

Q. I am now referring to Defendant's Exhibit O, which was the schedule which was submitted on February 12, 1935, to the District. Mr. Bechtel, when you submitted the schedule with the letter of February 12, 1935, no communication was sent to the district in which you in writing objected or stated that the work had been held up due to the fact that you were deceived or misled by the ground conditions that you had encountered up to that time? [1080]

Mr. Marrin: You say that he sent that. It is not a fact that he sent it.

Mr. Tinning: The Six Companies sent it. That is a fact, you made no complaint in writing or otherwise that you had been deceived by ground conditions at the time you submitted this schedule?

A. To the best of my knowledge you are correct.

Q. That schedule of your proposed progress and schedule for construction was submitted by Six Companies following the request of Mr. Boggs which was dated February 5, 1935?

A. It appears that way.

Q. At this time, Mr. Bechtel, what steps had been taken on the work to place the concrete lining

(Testimony of Stephen Davidson Bechtel.)

in the tunnels as you proceeded with the excavation?

A. This schedule was submitted to you by Mr. T. M. Price, our Project Manager. The question you just asked, I believe, could be best answered by Mr. Price, who was there full time, and I think, and it is my understanding that it is proposed by our counsel to develop that point thoroughly by Mr. Price and by other witnesses.

Q. You seem fully advised on that. What was your knowledge of what steps had been taken at the tunnel on February 12, 1935 with respect to proceeding with the concreting?

A. I was familiar constantly throughout the job of the general plans of construction and the general procedure which was being followed. So far as the details at this particular time, I think that can be best developed by Mr. Price.

Q. You know, do you?

A. I can't say at this time.

Q. Did you know then? A. Yes.

Q. You have forgotten?

A. I do not recall at this moment.

Q. Isn't it a fact that at this time on the job there were no concrete forms?

A. I can't answer that.

Q. Isn't it a fact that the concrete forms were not ordered until [1081] sometime in May?

A. I do not recall the date.

Q. You don't recall? A. No.

Q. Isn't it a fact that there was no concrete ag-

(Testimony of Stephen Davidson Bechtel.)

gregates plant in place or in operation on the job on February 12, 1935?

A. I do not recall. I believe you can get that information from Mr. Price, and subsequent other men. I will get it for you, Mr. Tinning, if you like, but I have not it available.

Q. You were not following it very closely?

A. I was following it very closely.

Q. What is the reason you cannot tell us in what stage the preparations were with respect to your concrete lining at that time?

A. For the reason that we had on the job a competent organization that we had trusted with the job. We had as a company policy an executive committee of which I was chairman, of which Mr. H. J. Lawler, of the Utah Construction Company was a member, and of which Mr. Frank Modglin was also a member; we three, and more particularly Mr. Lawler and I, were constantly in touch with the project matters of major importance and major policy, and the detail of handling the project, of the day by day details, and the day by day relations with the district were handled by the field organization that we had selected, and in whom we had placed confidence and whom we placed there for that purpose.

Q. The answer to my question is you don't know whether there was concrete forms on the job at that time? A. I do not recall.

(Testimony of Stephen Davidson Bechtel.)

Q. Did Mr. Larson, your tunnel superintendent, tell you that the concrete should be kept up in the tunnel to within 300 to 350 feet of the excavated face?

A. I do not recall any such statement.

Q. You don't recall that? A. No.

Q. Do you think it ought to be?

A. It depends on the conditions. [1082]

Q. Do you think that under the conditions in the Broadway Low Level Tunnel that the concrete should have been kept up to from 300 to 350 feet of the excavated face?

A. Looking back on it I would say yes.

Q. Did you believe that in February 1935?

A. I don't recall whether I believed it at that time.

Mr. Tinning: I will offer in evidence, if your Honor please, a letter dated April 2, 1935, from Six Companies of California, signed T. M. Price, Project Manager, addressed to Wallace B. Boggs, District Engineer, as Defendant's Exhibit II. I will read it:

[Set forth in the Book of Exhibits at page 389.]

[1083]

(The letter was marked "Defendant's Exhibit II.")

I offer in evidence as Defendant's Exhibit JJ a letter from Wallace B. Boggs, District Engineer, to the Six Companies of California, dated April 9, 1935. It reads:

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT JJ

April 9, 1935.

File: Broadway Tunnel Concreting.

Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

On April 2 you furnished me with your Drawing No. 19 entitled, "Sketch Showing Form and Concreting Arrangements, March 22, 1935", together with a letter setting forth general methods of operation.

While it is evident that this drawing does not show complete details and it is assumed that you will have worked out such details before commencement of the operation, the following comments are made on points which would seem to indicate the necessity of further study:

1. Details are not shown as to how the upper pipe will be supported when advanced to extreme position.

2. No provision is shown for handling the upper pipe should the situation arise that a double row of reinforcing steel would be required.

(Testimony of Stephen Davidson Bechtel.)

3. In case one pump breaks down, some type of cross-over connection may be necessary in order to keep the height of concrete the same on both sides.

4. It would appear that the shape of the upper section of the elephant trunk will cause the spilling over of concrete in dropping past the gate.

5. Consideration should be given to the slope of chutes, particularly the upper chute. Slopes should be sufficient so that concrete of the designed consistency will flow.

6. Provisions for jacking forms during pour are not shown.

7. It is assumed that you are satisfied, from your own experience, that the gate devices in the lower pipe lines will function satisfactorily.

8. No detail is shown of method of handling 9-ft. segments on curves. Your attention is directed to the necessity of obtaining smooth lines without fins.

9. Method of filling upper part of arch is not clear. This refers especially to getting the concrete in, around and back of the timbers.

10. Will the annular construction joints in the arch ring coincide with the construction joints in the finished wall section?

(Testimony of Stephen Davidson Bechtel.)

11. Has consideration been given, when determining that form section shall be 27 feet in length, to the time cycle for the various operations in order to complete the construction within the time limit?

These comments are based upon the preliminary design shown and it is assumed that more details will be submitted for discussion as your design progresses.

The District Engineer will be pleased to discuss these matters with you from time to time as you desire.

Yours very truly,
(Signed) WALLACE B. BOGGS,
District Engineer.

WBB/VE

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. JJ. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1084]

(The letter was marked "Defendant's Exhibit JJ.")

Q. Mr. Bechtel, at the time the Six Companies received this letter, did you complain that you had been deceived about ground conditions and that it had caused you to be delayed in the progress that you indicated by your schedule submitted in August, 1934?

A. What was the date of this letter?

(Testimony of Stephen Davidson Bechtel.)

Q. April 9. A. I do not think so.

Q. As far as you know there was no complaint made at that time? A. Not then.

Q. How far underground were you about the 9th or 10th of April?

A. I don't recall that, Mr. Tinning.

Q. Did you give any consideration to paragraph 11 in the letter of Mr. Boggs dated April 9th, where he told you that your cycle of operations apparently had been worked out without giving consideration to the fact that you had a time limit on your contract work?

A. This letter was addressed to Mr. T. M. Price, as I understand it, was received by Mr. Price, on the job, was handled as a job matter, and is not a matter which would come to me.

Q. It did not go to the Executive Committee?

A. This was handled on the job.

Q. This letter did not come to the executive committee? A. Not that I know of.

Q. It is a fact that matters of time, extension of time within which the job would be completed, were matters that did not come to your executive committee?

A. No, that is not correct; the matter of time extension, and the general progress and general schedule, general methods, were discussed with our executive committee, [1086] and were discussed with the other directors of the Six Companies of California, and their advice gotten as to the proper

(Testimony of Stephen Davidson Bechtel.)

procedure and necessary action taken to carry the project forward in the most expeditious manner that was possible, or practical to arrange at that time.

Q. Then, so far as you know, no attention was paid to the provision of this letter of April 9, 1935, paragraph 11, "Has consideration been given, when determining that form section shall be 27 feet in length, to the time cycle for the various operations in order to complete the construction within the time limit?

A. The proper procedure on a letter of that kind, the way we had them—

Q. I do not like to interrupt, but what I asked you was as to whether or not your committee gave any attention to that protest.

A. This letter did not come to the attention of the committee.

Q. Did your committee give any attention to it?

A. It did not come before the committee.

Q. And you made no complaint at that time?

A. I do not think so. Mr. Price may have but if so I don't know.

Q. The next matter in evidence is a letter dated April 19, 1935, in which Mr. Fry wrote to Mr. Price, which is already in evidence. It is Defendant's Exhibit F. That was with respect to conversations concerning the ground that Mr. Fry called to Mr. Price's attention.

Mr. Marrin: Mr. Bechtel's name was not mentioned in that letter.

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: It was addressed to the Six Companies and Mr. Price the Project Manager.

If your Honor please, we offer in evidence a letter dated May 1, 1935, from Six Companies of California, signed by T. M. [1087] Price, Project Manager, addressed to Mr. Wallace B. Boggs, District Engineer, and ask it be marked Defendant's Exhibit KK.

(The letter was marked "Defendant's Exhibit KK.")

I will read it:

DEFENDANT'S EXHIBIT KK

Builders of Low Level Broadway Tunnel
Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.

May 1, 1935.

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District 13,
1448 Webster St.,
Oakland, Calif.

Dear Sir:

We are making plans for the driving of drifts from the east portal, to meet the driving from the west portal.

Our plans are not yet mature enough to advise you definitely as to what method will be

(Testimony of Stephen Davidson Bechtel.)

pursued; however, in general, we plan at present to drive two wall plate drifts in each bore, from twelve to sixteen feet above the grade line, by means of mucking machines and battery locomotives. We plan on installing sufficient plant on that end, to permit this construction.

Very truly yours,
SIX COMPANIES OF CALIFORNIA,
By (Signed) T. M. PRICE,
Project Manager.

[Endorsed]: Received May 2, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex KK. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Q. Mr. Bechtel, were you in touch with the situation at the tunnel at the time the decision was made on or about May 1 to drive the drifts from the east portal westerly toward the excavation?

A. Yes.

Q. At that time did you make any complaint in writing to the District that you had been deceived or misled by the geological report? A. No.

[1088]

Mr. Tinning: Q. At that time, did you make any complaint, in writing, to the District, that you

(Testimony of Stephen Davidson Bechtel.)

had been deceived or misled by the geological report? A. No.

Q. And by "you," I am referring to Six Companies. A. Not to the best of my knowledge.

Q. At that time,—referring to May 1st,—did Six Companies make any demand, in writing, for extra compensation, for extra work in excavation or extra cost of timbering?

A. To the best of my knowledge, no.

Q. You did not make any complaint of any kind at that time, did you?

A. Yes. Yesterday, or Friday, I reviewed to you the discussion I had with Mr. Boggs.

Q. Well, that was at some time in April or May? A. April or May.

Q. That was with respect to the time you were asking for time extension? A. That is correct.

Q. But you said nothing, at any conversation, to Mr. Boggs, or any representative of the District, regarding having been misled by geological report?

A. Well, the fact the ground conditions were different.

Q. Did you demand extra pay?

A. Not that I recall.

Q. Did you refuse to proceed with the work at that time? A. No; we did not.

Q. How many feet underground were the tunnels on May 1, 1935,—the main excavation,—approximately?

Mr. Marrin: Q. If you know.

(Testimony of Stephen Davidson Bechtel.)

A. I do not recall; but, I believe, about five or six hundred feet in each of the two tunnels.

Mr. Tinning: Q. That is about what Mr. Larson testified to; that happens to be almost synchronous with his leaving the work on the 30th of April. At that time, May 1, 1935, you had approximately [1089] 100 feet of concrete lining that had been placed in November of 1934, as you went underground; that has all be described in detail here; and there was no other concrete lining in the tunnel except that that had been placed approximately 6 months before?

A. Well, I am not clear on the date, Mr. Tinning; but approximately. My belief is that the concreting was resumed; however, that can be best developed from your point,—clarified,—by others, as they have pertinent information on that particular subject.

Q. Isn't it the fact, at the time you had this conversation with Mr. Boggs, that you referred to yesterday, in April or May, there were not concrete forms on the job and there was no concreting, no concrete aggregates plant ready for operation on the job, and that no concreting had been done since the first 200 feet in rings had been put in, in November of 1934,—100 feet in each tunnel?

A. I don't recall.

Q. You don't recall that? A. No.

Q. You would not say it was not a fact?

A. I would not say it was not a fact.

(Testimony of Stephen Davidson Bechtel.)

Q. You would not say it was not a fact that the forms hadn't even been ordered at that time?

A. I wouldn't say that that was not a fact.

Mr. Tinning: If the Court please, we offer in evidence, as defendant's exhibit next in order, a letter from Six Companies of California, dated May 1, 1935, addressed to Wallace B. Boggs, District Engineer.

(The letter was marked "Defendant's Exhibit LL.")

Mr. Tinning: This letter is dated May 1, 1935, and reads:

DEFENDANT'S EXHIBIT LL

Builders of Low Level Broadway Tunnel
Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.

May 1, 1935.

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster St.,
Oakland, Calif.

Dear Sir:

We wish to confirm our statement of excavation we plan to perform this year.

In view of the fact that this job will run through the winter of 1935-36, we do not want

(Testimony of Stephen Davidson Bechtel.)

to undergo any expense of sloping slide areas or furnishing roadway excavation. If this work is done this year, it would probably need to be done again after it has stood a second winter.

We plan therefore to

1. Complete the roadway and finish it from Broadway to Golden Gate Avenue.

2. To rough out the slides and remaining roadway excavation on the remainder of the West approach.

3. Complete the backfill of the lower P. G. & E. wall, Sacramento Northern Bridge, Landsvale Viaduct, and any other structure that may be backfilled.

4. Complete the structure excavation.

Very truly yours,

SIX COMPANIES OF CALIFORNIA,

By (Signed) T. M. PRICE,
Project Manager.

P:C

[Endorsed]: Received May 2, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. LL. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1090]

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: Q. Mr. Bechtel, just to get in mind what this letter covers,—the work that you planned to complete in the summer of 1935 was the grading of roadway from the westerly end of the project, or Keith Avenue to Golden Gate Avenue; that was actually finished at that time, so that there was travel across that to serve that part of Oakland, was there not?

A. If I remember correctly, I believe so.

Q. In the fall of 1935, you also, from a point along the highway portions of the project, roughed out the slopes that had come in during the winter and the remaining roadway excavation,—the remainder of the work up to the tunnel?

A. I think so.

Q. And you completed the building around the Pacific Gas & Electric—What I am pointing to now is a large substation of some kind,— [1091] an electrical power station of the Pacific Gas and Electric Company, in the bottom of the canyon; and you completed backfilling behind that wall some 30 or 35 feet in height, which was constructed with that roadway cut through the P. G. & E. property?

A. Yes.

Q. You also concluded the backfilling that was necessary around that structure and other structures that had been built along the road, and you completed—or planned to complete structural excavations for all the other structures on the project so that you would not have this difficulty that had occurred in the preceding year where work had to

(Testimony of Stephen Davidson Bechtel.)

be stopped because water got in the foundations of your structure before you got your concrete in? That work, incidentally, Mr. Bechtel, was all let on subcontracts, wasn't it? A. Practically all

Q. Were Six Companies doing any work outside of the tunnel itself in the season of 1935?,

A. Well, apparently we installed a plant on the east end——

Q. Well, I guess we did not understand each other. You said "practically." I am not referring to the installation of plants or concrete equipment or other matters which were used in the construction of the tunnel. The plant that you installed to drive the drift from the east end, east portal, was part of your tunnel plant, wasn't it?

A. Yes.

Q. You were doing that work; and, of course, those plants were your own plants; but isn't it a fact that no part of the work outside of the tunnel work was done by Six Companies, and that all the rest of it was subcontracted to various subcontractors?

A. With this exception: we had subcontracted the grading work to McKinley and Crowell, at the completion of the main portion of the grading proper, and the other work that was under their contract, and they asked to be relieved of the completion of that work, because it was apparent that they could not proceed to complete same immediately; it would [1092] mean quite a gap in their opera-

(Testimony of Stephen Davidson Bechtel.)

tions; and we relieved them of that operation, and undertook to do it and use our own force.

Q. Referring again to Defendant's Exhibit "P,"—the perspective map,—all of the grading work that you refer to is the grading work—it is this possible 11,000 feet of highway from Broadway to Keith Avenue up to the west portal of the tunnel; that was done by subcontractors, wasn't it?

A. It was originally all to be done—That was what I am referring to—It was completed by Six Companies of California, later, with their own force.

Q. In other words, the winter of 1934-35 brought a delay in that work; the grading was done after that; you did it, yourself, with your own equipment—is that it?

A. Well, the water brought about delays in the work. They completed the work so far as they could at the time; the job could not be completed in a continuous fashion, and, therefore, we relieved them of responsibility of staying there to complete that.

Q. The reason they could not complete it was that your tunnel work was not far enough along; they had to have materials in the tunnel fill excavated from the tunnel?

A. Well, that was one of the reasons.

Q. Was there any other reason?

A. One reason was that, as outlined in one of the recent letters here, there were slides contemplated; and, if slides did take place in the ensuing

(Testimony of Stephen Davidson Bechtel.)

winter, it would have to be resloped afterwards, before being accepted by the Highway Department.

Q. In other words, you had a contract for this entire project, of one unit; and the requirement was that the contractor give the District the slopes in accordance with the plans and specifications at the end of the job?

A. That is the way you interpret it.

Q. Is there any other question about that in your mind?

A. Well, [1093] on the practice of it, yes; but not on the interpretation——

Q. Well, at any rate, that is what you had in mind at that time: that you would have to,—when you turned over your job, you could not turn it over with slides that had come down in the winter——

A. Well, that was not the point so much, as I understood the resloping; but I will say "Yes" to your point.

Q. That method of using subcontractors for the grading work and the construction of these various structures, and they are sometimes substantial, sometimes they are large, concrete structures—but those were all built by subcontractors, weren't they?

A. Well, substantially, yes.

Q. Well, were there any parts of those structures, other than the west portal down to Broadway, that were built by Six Companies, itself?

A. There were portions of it that were worked on by Six Companies.

(Testimony of Stephen Davidson Bechtel.)

Q. Name some of them.

A. Landvale Overhead Crossing was started by a subcontractor who found the conditions so tough he practically went broke.

Q. Did Six Companies do some work on there?

A. I think they did.

Q. But it was subcontracted?

A. The start was.

Q. Was all the work west of the portal of the tunnel subcontracted?

A. Originally contemplated to be.

Q. Well, was it? Did you let contracts for all parts of the work? A. Yes.

Q. Some of those contractors did not complete their work? A. That is correct.

Q. Now, the next diagram, in chronological order, is a letter from Six Companies of California to the District, which has already been introduced in evidence as Plaintiff's Exhibit No. 45,—the letter of June 10, 1935, requesting a 180 day extension of time. That is [1094] in evidence. And the next is Plaintiff's Exhibit No. 55,—letter of June 10, 1935, relative to engineering.

Then the next is a letter of July 12, 1935, Plaintiff's Exhibit No. 56, in which the District notifies Six Companies that its request for extension of time had been denied.

Q. Mr. Bechtel, when you received this letter—by "you," I refer to "Six Companies"—received that letter from the District, on or about July 12,

(Testimony of Stephen Davidson Bechtel.)

1935, notifying Six Companies that it had not received the extension of time; that the extension of time requested by your letter of the 10th of June had been denied, did Six Companies cease work?

A. It did not.

Q. It continued with the work? A. Yes.

Q. Did you ask, at that time, for any extra pay?

A. To the best of my knowledge, we did not.

Q. The next exhibit, in chronological order, is already in evidence,—Plaintiff's Exhibit No. 56, the letter of July 12, 1935, to Six Companies from the District, rejecting the claim of Six Companies for the performance of additional engineering by the District. Did Six Companies cease work at the time it received that letter?

A. What date was that?

Q. The letter denying the request for additional engineering,—July 12th. A. It did not.

Mr. Tinning: Your Honor, I don't know how much longer you care to go on tonight; I have lots of ammunition here, but we are going into another subject.

The Court: We will meet downstairs in Room 276 tomorrow morning, as there is some construction work to be done in this room for several days. We will take an adjournment until tomorrow at ten o'clock.

(Thereupon, an adjournment was taken until Wednesday, April 27, 1938, at 10 o'clock a. m., at Room 276.) [1095]

(Testimony of Stephen Davidson Bechtel.)

Wednesday, April 27, 1938.

STEPHEN DAVIDSON BECHTEL,

Cross Examination (Resumed).

The Court: Proceed, Gentlemen.

Mr. Tinning: Mr. Clerk, may I have Plaintiff's Exhibit No. 47 and Plaintiff's Exhibit No. 57?

Q. Mr. Bechtel, on last Friday Plaintiff's Exhibit No. 47 was introduced, a letter dated July 26, 1935, a letter signed by you, in which you, on behalf of the plaintiff in this action, stated in substance—I am going to hand you the exhibit, because it is rather a long document, and I think you will be able to follow this examination—in which you stated on behalf of the Six Companies that you thought the question of engineering should be submitted to arbitration, and in which you stated that if the arbitration was agreed to the conditions upon which it would be entered into, expenses, etc., and on the same day you also wrote a letter to the District, Plaintiff's Exhibit No. 47, in which you referred to the District's letter of June 12th, which is also in evidence, rejecting Six Companies' application for an extension of time.

Mr. Smith: July 12th instead of June 12th, Mr. Tinning.

Mr. Tinning: July 12th. The letter from the District was dated July 12th, and the application for extension of time of Six Companies to the District was dated June 10th.

(Testimony of Stephen Davidson Bechtel.)

Mr. Smith: That is right.

Mr. Tinning: These letters were both written on the same day. If you will look at the exhibit I think that is clear. That is correct, isn't it?

A. Yes.

Q. And one letter sought arbitration of the engineering contention that you were making, and the other letter respecting the extension of time stated that the delay that had occurred had been [1096] causd by the heavy rainfall of the last rainy season, which was much heavier than any season in recent years, and by the fact that the condition of the ground was such that faster progress was impossible, the actual ground conditions had been far worse for working purposes than the condition of the ground shown by the geological report made by the geologist of the District, and this had resulted in retarding the speed of the work. Now, this was the first time, was it not, Mr. Bechtel, that there was any written protest or objection, if this be an objection, or mention in writing of the geological report which you have testified misled Six Companies, this is the first time there was any written mention of that geological report in any communication of Six Companies to the District?

A. I believe that is correct.

Q. And this was fourteen months, approximately, after the contract? A. Yes.

Q. Each tunnel had been driven somewhere between 800 and 900 feet into the mountain at that time; that is true, isn't it?

(Testimony of Stephen Davidson Bechtel.)

A. Approximately.

Q. Now, in that same letter, in the letter sent the same day, rather, in which you were seeking arbitration, you also stated, if you will please refer to the last page of Plaintiff's Exhibit No. 57:

> "In the event you are unwilling to submit the matter to arbitration we will expect to immediately commence such legal proceedings as will be necessary or proper to determine our rights in the matter. In order that a speedy settlement may be reached we ask that you reply to this letter by August 7, 1935. If we do not receive an affirmative answer by that date we will consider that you do not care to arbitrate the matter and commence such legal proceedings as may be proper, as above suggested."

Now, at the same time that you asked for arbitration, at the same [1097] time you protested and objected to the engineering decision, at the same time you objected to the extension of time, you stated if you did not have a reply from the District with respect to the arbitration by August 7th that you would commence legal proceedings. As a matter of fact, you received no reply from the District, that is true, isn't it?

A. I believe that is correct.

Q. Well, you know it, don't you?

A. Well, I believe it is so.

(Testimony of Stephen Davidson Bechtel.)

Q. You did not start any legal action, did you?

A. That is right.

Q. Well, that is correct? A. Yes.

Q. And you proceeded with the work from that time on for a considerable period? A. Yes.

Q. You stated in the letter respecting the extension of time that the rainfall during the winter of 1934-35 was unusually heavy, and much heavier than it had been for a number of years before. You remember that statement? A. Yes.

Q. As a matter of fact, don't you know that the rainfall in the season of 1934-35 was less than normal average rainfall until the month of April, 1935?

A. The average rainfall for that winter was considerably over the average in previous years.

Q. Isn't it a fact that the rainfall, the mean average rainfall at Berkeley, where there is a Government station, it is the nearest station to this work, is 25.12 inches, and that the total rainfall for the season of 1934-35, as shown by the records of the Berkeley station, was 25.24 inches?

A. I do not know that to be a fact. I can tell you that I personally reviewed, or had compiled, the rainfall for the winter period from October to April, inclusive, and that the period of time in 1934-35 was substantially over.

Q. How much over?

A. Approximately 50 per cent.

(Testimony of Stephen Davidson Bechtel.)

Q. 50 per cent. Did you examine, yourself, or under your instructions have examined the records of the United States Weather Bureau that are published showing rainfall measurements taken [1098] at Berkeley, at the University of California, the nearest Government station to this work?

A. On my instructions——

Q. Will you answer "Yes" or "No," please?

A. No, so far as the records in Berkeley that you refer to. On my instructions, and believing that it was the closest available Government statistics I had the data for the past previous years procured from the Department of Agriculture, from their proper subdivision that keeps the rainfall records officially.

Q. Well, what station?

A. Oakland, believing that that was the closest one to the job.

Q. Well, the Government station for rainfall probably was at Chabot, is it not?

A. I do not know.

Q. And they also keep rainfall records at the Oakland Airport?

A. If that was the case I did not know it.

Q. You did not know it?

A. My instructions were to get the data from the station that was nearest to the work, and it came back from Oakland.

Q. You will concede, will you not, that the University of California is closer to this work than downtown Oakland, is it not?

(Testimony of Stephen Davidson Bechtel.)

A. I would say probably—I would say approximately the same distance.

Q. All right. Would you say that it is not a fact, as shown by the records of the United States Weather Bureau, that up to April 1, 1935, the rainfall records at Berkeley station show that the rainfall was less than the mean average rainfall?

A. The only records——

Q. Will you please answer "Yes" or "No," and then explain? A. I cannot answer that.

Q. You do not know that. You do not know that there was over 5 inches of rain in the month of April, 1935?

A. I do not know that. [1099].

Q. That is what brought the average above the mean average rainfall?

A. That is not correct.

Q. That is not correct?

A. To my best belief based upon the investigation that I had made.

Q. You continued to work through the month of August after delivering the ultimatum of July 26, 1935, which we have already referred to, and in which you said that unless there was arbitration that you were going to take legal action, you continued to work, and on August 23, 1935, you wrote a letter to the District—Mr. Clerk, may we have Plaintiff's Exhibit No. 48 in evidence—you wrote a letter in which you stated that,

(Testimony of Stephen Davidson Bechtel.)

"At the present time we are engaged in installation of the type 'A' concrete tunnel section, and while we will continue to proceed with the installation of same in the excavated portions of the two tunnels, we hereby notify you that we are informed and advised by our engineers that the section in question is inadequate and unsafe."

That is the first paragraph of the letter signed by you bearing date August 23, 1935. You were referring in that paragraph, were you not, to the permanent concrete lining which the plans and specifications called for, you were to install under your contract a lining which was required to be of the minimum thickness of 2 feet at the top or crown of the tunnels, and 5 feet at the base, that is what you were referring to?

A. The permanent lining.

Q. Yes. You were not referring at that time to the timbers with which you were supporting the excavated and unlined portions of the tunnels?

A. No, but in that connection I think it is pertinent to recall that there had been a number of discussions between our engineers and your district engineer, Mr. Boggs, and that Mr. Boggs had had advice from our men as to their intention, their thoughts, their views on this subject, and also at that time that [1100] we had protested to Mr. Boggs and to the District Engineers on the job

(Testimony of Stephen Davidson Bechtel.)

that the methods which were necessary in the setting back of timbers and in the trimming of timbers were contrary to the practice, and was probably unsafe, and was very difficult, was delaying the work, and I believe that that fact was reviewed at some length by our consultants who reviewed the matter with Mr. Boggs in his office.

Q. Now, you made an explanation and you have stated that engineers employed by the contractor had protested in some conference with Mr. Boggs. There was no written protest of any kind or character to the District prior to this letter of August 23, 1935, was there?

A. I believe you are right. I will answer you "Yes", and I might further comment on that point that up to this time, Mr. Tinning, we had been building a tunnel, we thought we were building it for people who wanted a tunnel built and where it would be handled as a construction project, and as the difficulties developed we were being driven to a point by lack of decisions, by the control which was being exercised over your engineers by your Board of Directors, and by your legal counsel, where it was making it very difficult to make progress; it was interfering with our progress, it was interfering with the decisions, it was making the whole project very confused and difficult.

Q. Mr. Bechtel, let us take up one subject at a time. Let us take up the engineers that you referred to, and I assume you referred to the engineers

(Testimony of Stephen Davidson Bechtel.)

mentioned in the next paragraph of this letter, T. L. Phillips and Fred H. Tibbetts; is that correct?

A. Yes, and I believe Mr. Tom Price had also discussed it at some length with Mr. Boggs as a job matter.

Q. Isn't it a fact that the first time that these men whom you had had brought in, Mr. Phillips and Mr. Tibbetts, ever discussed [1101] the matter with Mr. Boggs was on the 8th day of August, 1935? A. I don't know the date.

Q. You don't know? A. No.

Q. When did you employ Mr. Tibbetts and Mr. Phillips? A. I do not recall the date.

Q. It was very shortly before this letter was written, wasn't it?

A. I am under the impression that it was possibly six weeks, Mr. Tinning.

Q. If it was six weeks that would be the outside, and your memory is not clear?

A. My memory is not clear.

Q. You have not examined the records?

A. I have not examined the records.

Q. Then previous to the time—put it six weeks, that would be six weeks back of August 23rd, or about the 10th of July, 1935, you never made any protest of any kind with respect to the design of the tunnel or of the conditions which you had encountered there? A. No, that is not correct.

Q. When did you first protest?

A. The discussion I had with Mr. Boggs, as I told you, or told the Court last Friday.

(Testimony of Stephen Davidson Bechtel.)

Q. Well, that was sometime in April or May?

A. Yes.

Q. You claim that at that time you protested regarding the ground conditions? A. Yes.

Q. Did you protest regarding the tunnel lining?

A. I do not recall.

Q. So the first time you ever protested the tunnel lining was August 23, 1935?

A. You mean in writing?

Q. Yes. A. I believe that you are right.

Q. And the first time you ever protested the tunnel lining, verbally or in any other way, was after Mr. Tibbetts and Mr. Phillips had been employed as consulting engineers by the Six Companies? A. I think you are right. [1102]

Q. Well, that is correct, isn't it? As a matter of fact, isn't it true that Mr. Tibbetts was on the job and inspected the tunnels for the first time early in August, 1935?

A. I don't know the date.

Q. And on the 8th day of August he called on Mr. Boggs and stated to Mr. Boggs, with Mr. Phillips, that the contractor was having difficulty, and that the permanent lining of the tunnel was not adequate, and as a matter of public benefaction Six Companies desired to have the lining thickened?

Mr. Marrin: I think that is improper cross-examination. It is a conversation at which this witness was not present.

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: He was president of the company and sent the men there.

Mr. Marrin: He doesn't know what occurred at any conversation that occurred in his absence.

The Court: Ask him if he knows.

Mr. Tinning: Q. Do you know what occurred at that conference?

A. No, but I might comment that I understood that they discussed matters which were subsequently covered in these letters.

Q. Well, as a matter of fact, isn't it true that Mr. Tibbetts and Mr. Phillips reported to you that on the 8th of August, 1935, they had inspected the tunnels and that in their opinion it would be advisable, from the contractor's viewpoint, to thicken the lining? A. I believe they did.

Q. Isn't it a fact that you were one of the members of this executive committee that you told us about yesterday, that all matters of policy and general consideration of the work was referred to?

A. Yes.

Q. You knew when Mr. Phillips and Mr. Tibbetts were employed. Isn't it true shortly after they were employed they came back and told you from the standpoint of the contractor it was advisable [1103] to thicken the lining of the tunnel?

A. Yes, the matter was undoubtedly discussed with Mr. Lawler and with me. The details of the particular conversation and just when it was I do not recall. [1104]

(Testimony of Stephen Davidson Bechtel.)

Q. Now, this suggestion that the lining be thickened came in August, and shortly prior to the date of this letter, and you state that you were advised, you state in the letter that you have before you of August 23, that you were advised on August 19 by Mr. Tibbetts and Mr. Phillips that they thought the installation of the type "A" section endangered the structural safety of the work, the safe operations of ourselves as contractors, and the future safety of the public. They recommend that same be enlarged and strengthened and further reinforced in order to make same an adequate and safe installation suited to the nature of the ground conditions which have been encountered, and for the uses to which the tunnel will be put after completion.

You were discussing then the permanent lining and nothing else?

A. We were discussing the lining, and you say nothing else—I don't know as that would be a proper word.

Q. You were not discussing your timbering, were you, you were discussing the installation of the Type "A" section?

A. This letter refers to the lining.

Q. And you at that time were asking the District Engineer to consider thickening the lining, so that after the tunnel was done it would be safe for the public to pass through. That was one of the elements.

(Testimony of Stephen Davidson Bechtel.)

A. This letter, these discussions and investigations had been made by those men at our instigation; they discussed it with Mr. Boggs, I was not present at those discussions, but this letter was subsequently written to the District Engineer, so that they would have our views in writing.

Q. You signed the letter, didn't you?

A. I presume that I did. I see it is not a signed copy.

Q. You remember writing the letter, don't you?

A. Maybe we can check that letter by looking at the original. [1105]

Q. Is there any question? Don't you remember this letter on this important matter of August 23, 1935, and the contents of the letter?

A. I remember the letter.

Q. There is no question that you signed the letters which is in evidence here?

A. It may be, but as I explained yesterday, there had been several letters sent to you that I was familiar with that I had authorized others to sign my name to.

Q. When you put this letter in evidence last Friday, it was stated it was signed by you.

A. That is conclusive, then.

Q. So that that matter goes out of the question. At this time, one of the matters discussed in your letter was the feature of safety of this tunnel design, and you desired to have it thickened so that the public would be protected and the tunnel would

(Testimony of Stephen Davidson Bechtel.)

not fall down after it was built. That is true, is it not?

A. That was probably one of the reasons.

Q. Didn't the letter say so, in order to make the same an adequate and safe installation suited to the nature of the ground conditions which have been encountered and for the uses to which the tunnel will be put after completion. That is true, is it not, that is what the letter says, and that is what you are referring to, the safety of the public?

A. In that respect, yes.

Q. You also had in mind that under this contract you were required to furnish a completed project to the District. You knew that?

A. That is right.

Q. And if the tunnel lining was inadequate to support the ground after you installed it and before the job was completed, that the contractor might have a liability? You knew that?

A. I presume that I did. However, Mr. Tinning, I think that on that point, it is my understanding that we contracted to build a particular job which was described in the plans and specifications [1106] and the attachments thereto and the references thereto.

Q. Referring now to the geological report?

A. I am referring to the plans and specifications and the contract, and all of the references therein, and if that was a different job, it should be so recognized that the concreting was different, you

(Testimony of Stephen Davidson Bechtel.)

should change your structure, and in that regard you will notice there is a certain pride among men in the construction business to have whatever we do succeed. These firms had combined themselves together and these Six Companies of California had quite a long record of construction. Many of us live around here, we had our homes here, and when we went out there to build a job we wanted to build something that was right; if anything was not right we wanted to call your attention to it for several reasons, one of which was that we lived here and we wanted this thing to be a properly constructed job.

Q. Mr. Bechtel, at the time this letter was written, approximately 1,000 feet of tunnel had been excavated in each of the bores, of which approximately 800 feet in each tunnel had been standing supported on timbers for many months; that is true, is it not? A. That is correct.

Q. And nothing had been done with respect to the actual work of installing permanent concrete lining in these tunnels until after July 1, 1935?

A. No, you are wrong there.

Q. What concreting had been done other than putting in the 92 feet in the south bore, and 110 feet in the north bore, which was completed in November, or early in December, I think the 5th of December, 1934—what concrete was placed in the tunnel after that date and when was the first time that it was placed?

(Testimony of Stephen Davidson Bechtel.)

A. You have a compound question, Mr. Tinning, there. You ask whether anything had been done. To that I would say you apparently fail to realize that in order to get ready to concrete a tunnel [1107] of this type and size there was a lot of preparatory work necessary, particularly where you require the type of work that you want here, which substantially amounted to steel form, and the intricacy or the detail and the exactness to which it had been indicated would be required, we had to be very carefully prepared to do that properly, very carefully and very exactly; and plans had been submitted to Mr. Boggs and, as I understand, they were slow in being returned, there were suggestions, inquiries into certain points, has this been considered, has that been considered, has something else been considered—those matters were considered, and we were getting together our plant and equipment for that operation.

Q. What had been done in the actual placing of concrete in the tunnel prior to July 1, 1935?

A. The portal sections had been completely concreted.

Q. Was any concrete poured in the tunnel after December 5, 1934 and prior to July 1, 1935?

A. I do not believe any had been. However, the records will show that, Mr. Tinning.

Q. Isn't it a fact that there was not any poured?

A. I do not believe so—I believe it is a fact that

(Testimony of Stephen Davidson Bechtel.)

there was none. However, I have not the records to know.

Q. Isn't it the fact that during the month of June, 1935, you were assembling the forms, the steel forms, and the jumbos on the job, that you were constructing and finishing the construction of a concrete aggregate plant, that you were building a concrete bunker, a gravel bunker, a cement bunker, down on the railroad at the Landvale connection, and that you were not ready to pour any concrete prior to the 1st day of July, 1935?

A. I believe that is correct.

Q. And during all of that time as you drove forward in the tunnel you advanced without placing any lining under those timbers? [1108]

A. You mean not concreting?

Q. Yes. A. I think that is correct.

Q. Isn't it true that sometime in the latter part of May you discovered that the timbers had settled in various places into the sections required for placing the concrete lining?

A. The particular date I do not recall, but prior to the time we started to concrete that had been apparent.

Q. Wasn't it about the time that you were talking to Mr. Boggs this conversation that you said you had with Mr. Boggs in April or May, that you knew that you had a considerable amount of timber which had settled or moved so that it was inside

(Testimony of Stephen Davidson Bechtel.)

of the sections or the area where you must place your concrete?

A. I do not have a recollection of that knowledge at that time.

Q. When did you first learn that?

A. I believe that it was—

Q. Approximately.

A. I believe that it was at the time we were getting ready to set up the concrete forms in the tunnel, and approximately the same time, too, that Mr. Phillips and Mr. Tibbetts were employed, and, incidentally, they were employed after your letter to us of approximately June 12, turning down our application for an extension of time.

Q. Just so the record will be clear, that is July 12?

A. July 12.

Q. So that we have now in your recollection Mr. Phillips and Mr. Tibbetts were employed sometime after July 12? A. Sometime in there.

Q. And you think it was about that time that you discovered that the timbers, a large number of the timbers were extending into the concrete section?

A. I think so.

Q. So that that timber had been in, some of it, some of the timber that was placed in January had been in six months at that time, or more?

A. Yes. [1109]

(Testimony of Stephen Davidson Bechtel.)

Q. And the timber that had been placed in December had been in seven months or more at that time?

A. If it was placed in December it would have been in seven months.

Q. Now, isn't it true that when you discovered this you knew that you would have a difficult and hazardous task to reset the timbers, that is, move them back, so that you could have the place to put in the specified concrete lining? A yes.

Q. You also knew at that time that it would require a considerable amount of concrete to fill the space between the timbers? A. Yes.

Q. You also knew at that time that the District Engineer would require you to build the tunnel in accordance with the plans and specifications, and not permit timbers to intrude into the section required for the concrete lining under the plans and specifications?

A. As this matter was developed, and it became apparent—

Q. Will you answer "Yes" or "No," and then explain? Did you know that the engineer was going to require you to build this tunnel the way it was specified?

A. Yes, exactly the way it was specified.

Q. He was not going to permit the timbers to intrude into the concrete section, you knew that, too? Will you answer that "Yes" or "No"?

A. No.

(Testimony of Stephen Davidson Bechtel.)

Q. You did not know that?

A. No, because I will tell you the reason why, because there was a discussion, as I understand it, between Mr. Price, as reported to me by Mr. Price, that at first a quarter of an inch intrusion would be permissible, a ridiculously small amount in a tunnel of this type and character, then it was increased to half an inch, and then to an inch, and the discussions went on there, we were endeavoring to get a practical application to take care of a very difficult situation, and basing our suggestion and our requests on a lot of experience that Mr. [1110] Lawler had had, 30 or 35 years in tunnels up and down this western country, and they had never had a condition as unnecessarily stringent as this was. We were endeavoring to get a practical application and none was given. As I say, we considered your quarter of an inch tolerance, later half an inch, and then an inch, ridiculous. We were endeavoring to get a practical application. We called in Mr. Tibbetts, we called in Mr. Phillips, who were engineers, who had done a lot of work, and in so doing had interpreted for the owner as engineers in their professional positions, interpretations of what is practical, and when specifications are made we, as contractors, think that they are going to be interpreted practically, not with a definite legally interpreted application. There is a great difference between building a tunnel under a technical legal interpretation and under a practical engineering in-

(Testimony of Stephen Davidson Bechtel.)

terpretation, and I just want to comment, if all tunnel construction or construction has to be done under a very technical legal construction, it requires a vastly different condition to work under than is common and accepted practice.

Q. Mr. Bechtel, before you bid on this job you read the specifications, didn't you? A. Yes.

Q. And you remember the section with respect to timbering, overbreak, which required you, which said in no event is the timber that is installed to be permitted to extend into the section required for the concrete lining, a 2-foot neat section at the top and 5 feet at the bottom? Do you remember that?

A. Substantially, yes.

Q. When did this conversation with respect to permitting the timber to intrude, or what you call tolerance, that, as you say, Mr. Price had, first a quarter of an inch, and then half an inch, and then an inch, in what month did that occur?

A. When we were [1111] getting ready to start concreting, when it became apparent that the timbers had settled to a point that there was a substantial—

Q. (Interrupting) You said that was about the 1st of July, as I remember it.

A. Somewhere around there.

Q. As a matter of fact, it was ultimately determined in this tunnel that it was necessary because the timbers had intruded to modify the sections to the extent of 10 inches, was it not?

A. That is correct.

(Testimony of Stephen Davidson Bechtel.)

Q. But at the time referred to, prior to the disaster of August 28, 1935, the District Engineer had advised Mr. Price that it would be necessary for him to set back the timbers so that he could build the section the way the plans and specifications called for, had he not?

A. With extreme exactness, and in my opinion unnecessary exactness, and contrary to practice, and contrary to what reasonable engineering would require.

Q. You think it was reasonable engineering to permit the timbers to intrude into the concrete in violation of the specifications?

A. It is accepted practice, Mr. Tinning; it is a question of degree.

Q. Isn't it a fact that at this time in July you were seeking to permit the timbers to intrude into the section, which would cut down the amount of concrete in the arch? You can answer that "Yes" or "No," and then explain.

A. Yes. A request was made, and it was pointed out, and I believe particularly by Mr. Tibbetts and Mr. Phillips, that there was considerable additional concrete between the timbers that would more than compensate for an encroachment of the timber, and particularly in this case, where the removal of these timbers would cause a real hazard, would slow down the progress, would interfere with the progress of

(Testimony of Stephen Davidson Bechtel.)

the work, and would cost a great deal of additional money. [1112]

Q. Mr. Bechtel, there is nothing in this letter about intrusion that we are talking about. I would like you to answer my question. I do not think you understood it. I was referring to these requests that you say were made verbally of Mr. Boggs and denied by him to permit timbers to intrude into the designed concrete lining section, and I asked you if it was not true that that would weaken the arch to the extent of the intrusion? A. No.

Q. It would not? A. No.

Q. That is your engineering opinion.

A. No

Q. Is that your engineering opinion? Will you answer that question? Is that your engineering opinion that the intrusion of the timbers into the designed section would not weaken the arch? Will you answer "Yes" or "No," please and then explain?

A. No; under the conditions that this job had to be built and was built, there was considerable additional concrete outside of the so termed minimum section which more than compensated for the intrusion of timber in the minimum section described.

Q. They had to put that in, anyway, to fill up the space between the timbers?

A. Not necessarily, no.

Q. What would you put in there?

(Testimony of Stephen Davidson Bechtel.)

A. One could have back-filled it, back-packed it with timber, with rubble, with gravel, as was done elsewhere in the tunnel.

Q. Between the timbers, back-packed with rubble?

A. Yes, the specification permitted that.

Q. It did? A. Yes.

Q. That is your opinion?

A. That is my recollection.

Q. You were trying to have the timber intrude into the section in the latter part of June and in August you wrote a letter in which you stated you thought that the section was weak and that it ought to be thickened, and that the public would suffer because it might fall down on them if you did not make it thicker? How [1113] do you reconcile those two positions?

A. Mr. Tinning, you are putting a wrong construction on this matter, and you are reading into it things that are not there. You are confusing the issue, I think, Mr. Tinning.

Q. I will have to take the responsibility for that, Mr. Bechtel. I would ask you, though, if it is not a fact in your letter of August 23rd you were seeking to have the district strengthen the arch by thickening it and make some other changes which would require the placing of more concrete and more steel in the arch than the A section which was called for in the specifications provided for? That is what this letter was seeking to do, was it not?

(Testimony of Stephen Davidson Bechtel.)

A. This letter was writen August 23rd; this letter was written after our engineers had made a careful study of this matter.

Q. Will you answer my question, please? I ask you if it is not a fact that by this letter of August 23, 1935, Six Companies were seeking to have the district thicken the arch and add steel, and strengthen the permanent concrete lining?

A. Yes, but this letter was written at a subsequent date. The discussions which I spoke of were made in an effort to expedite this work, and make it safer, and make it more economical, and this came as a result of an engineering study made by Mr. Tibbitts and Mr. Phillips.

Q. Which would have resulted if they had adopted your suggestion in the addition of concrete to the arch, additional steel, and a new design, that is, a strengthened arch—that is what you were seeking, so that it would not fall down on the traveling public: isn't that the purport of this letter?

A. Well, you have got about five questions in one, there.

Q. Then we will break them up into one, if you cannot understand that one. Were you trying to increase the thickness of the de- [1114] signed section?

A. On the recommendation of our consulting engineers, Mr. Phillips and Mr. Tibbitts.

Q. Were you trying to strengthen the design of the section, Type A? A. Yes.

(Testimony of Stephen Davidson Bechtel.)

Q. And in July or the latter part of June you had been delayed by the intrusion of timber, and now you state at this time on August 23, 1935, that "Under these circumstances"—that is, that the design was weakened, that it was likely to fall in or cause damage, that you would proceed with the installation of type A section of concrete under protest and upon notice to you as above stated; and we further hereby notify you that we do not assume any liability or responsibility for the safety or adequacy of any such installation, but, on the other hand, we will proceed with such installation only upon the condition that full liability of any kind, civil or criminal, which may arise from or be caused by installation of same be assumed by you. That is true, is it not? A. Apparently.

Q. Apparently. You wrote it, didn't you, and you told us in that letter that you would proceed under protest, and if it fell or anything of that kind we would be responsible and not you. That is true, is it not? A. Yes.

Q. And your contract stated that you took all risks in constructing that tunnel and delivering it as a complete job to the district.

A. That is what it said, the tunnel as originally contemplated and specified.

Q. And we were talking about the tunnel originally contemplated in this latter, section A lining.

A. That is correct, but when you talk about our assuming responsibility under our contract, if we

(Testimony of Stephen Davidson Bechtel.)

were to build something contrary to our contract we did not want to be held responsible for it.

Q. But your contract provided that you were to build A section 2 feet at the top and 5 feet at the haunch?

A. To meet certain condi- [1115] tions, yes.

Q. That was your contract, and you now say that you would proceed under your contract, but that you disclaim any liability; that is true?

A. That is true, Mr. Tinning.

Q. You wanted another lining than the one that was called for in the contract?

A. I was speaking here——

Q. Will you answer that question "Yes" or "No,"——

Mr. Marrin: Let the witness answer the question. He is doing his best to answer the question.

Mr. Tinning: Q. Will you answer my question and then explain? Will you read the question?

(Question repeated by the reporter.)

A. I recommended another lining.

Q. That is what you said in this letter?

A. We recommended another lining to take care of the different conditions that had developed, that had become apparent to us, following the recommendation of our engineers.

Q. Under your contract, in addition to the type A section there was a provision for a type B section, an invert, which was in effect a circle, a barrel, which you agreed to do, that work, the B section, at

(Testimony of Stephen Davidson Bechtel.)

a different and higher price than the A section. That is true, is it not? A. Correct.

Q. And under the terms of your contract the District Engineer had the right to have that Type B section installed in any place in this tunnel where, in his judgment, it was necessary to meet the conditions encountered, heavy ground or other conditions, that appeared in his judgment that required it?

A. That is true, but——

Q. Just a moment.

A. I want to explain my answer there. I say yes, my answer is that he had that right. However, if it varied substantially from the quantity involved, say instead of saying 200 feet there were 4,000 feet of type B, it would not have been the same [1116] contract, nor what was contemplated.

Q. In other words, you interpreted the plans and specifications so that the District Engineer was limited as to what he wanted to put in?

A. That is my understanding of the interpretation which has been placed on that in other cases, or in other instances where radical quantity variances have existed.

Q. Regardless of that——

A. (Interrupting): And that has been our experience, Mr. Tinning.

Q. That has been your experience? A. Yes.

Q. Mr. Bechtel, if the specifications show as a matter of fact that the District Engineer could have placed the whole approximately 6,000 feet of these

(Testimony of Stephen Davidson Bechtel.)

tunnels under the B section, you would not say that you were not bound to do it under your contract, would you? You would be paid for it under the contract price you bid, would you not?

A. I don't know, Mr. Tinning. I think that would be a very moot question whether you would. That is a legal question that I would probably have referred to our counsel for advice.

Q. You would have been paid more for that, you knew, if you did more?

A. That is correct, and if a practical amount of it, not taking the entire project.

Q. We are only asking for your opinion of what you did. A. You did ask my opinion.

Q. You did not put any in, did you?

A. Not as such.

Q. You did not put any in, at all, did you?

A. Of Type B, as such?

Q. Yes. A. No.

Q. You did not put any in at all, one foot of it, did you? A. Of Type B?

Q. Yes. A. Technically speaking, no.

Q. You put in Type A and nothing else?

A. No, we put in Type A, but we put in a great deal more than type A.

Q. Referring now to the material that you put in outside of the [1117] neat section required by the plans and specifications?

A. Partially, yes, but I believe that point will be developed a little later by other witnesses who are in a better position to discuss that point than I.

(Testimony of Stephen Davidson Bechtel.)

Q. What are you referring to? There is no mystery about this. You had to put in a section, Mr. Bechtel, which was two feet thick at the top and five feet at the bottom, and you had to fill in the over-break, and you had to place concrete or grouting or rubble or lagging outside, according to the specifications, and one foot had to be solid concrete. You knew that under the specifications, didn't you, the over-break?

A. No, I do not recall that.

Q. And concrete between timbers?

A. I do not recall that.

Q. You do not recall that? A. No.

Q. At any rate, under your contract, you had to build this tunnel in accordance with the design with two feet thickness at the top and five feet at the bottom, and you were complaining as it developed in these letters that you had to put in a lot of extra concrete. Are you familiar with the provisions of paragraph (b) of Section 32 of the specifications?

A. I was familiar with them, but I am not familiar with them at this time.

Q. Let me refresh your recollection in view of this testimony: "Any excavation which, due to requirements of timbering"——

Mr. Smith: What page is that?

Mr. Tinning: It is page 59. It is the paragraph in the right-hand column, the second paragraph of paragraph (b), over-break, Section 32 of the plans and specifications which are in evidence:

(Testimony of Stephen Davidson Bechtel.)

"Any excavation which, due to requirements of timbering or the nature of the material, or caused by over-breakage, extends more than one foot from the outside neat lines of the concrete structure, may, at the option of the contractor, in lieu of replacing with the structural concrete specified, be fi ed to within [1118] one foot of said neat lines of concrete with spalls, boulders, or other material approved by the District Engineer and grouted i with a cement grout consisting of one part of cement to three parts of fine aggregate and applied as directed by the District Engineer and to his satisfaction. Such construction, however, shall not be permitted within the one-foot space outside of the neat lines of the concrete structure, and such space shall be filled only with Portland cement concrete mixed in the same proportion and placed at the same time as the structural concrete, provided that if steel liner plates or ribs are used and are allowed by the District Engineer to remain in place, the spaces back of plates and ribs shall be dry packed and grouted as provided, but any space between the plates and the neat lines of the structure shall be filled with concrete at the same time as the neat structure."

Did you have that provision of the specification in mind a few moments ago when you said you were doing more than your contract provided in filling in spaces between the neat concrete sections

(Testimony of Stephen Davidson Bechtel.)

and the spaces outside of the excavation? You knew you had to fill it one foot in concrete, under these specifications, didn't you?

A. No, I don't think it says that, Mr. Tinning.

Q. We will go on with the letter of August 23. I am referring to page 2:

> "In view of our conclusion above expressed, we shall feel free to discontinue the further installation of this type section unless within reasonable time after receipt of this notification to you, you alter the design of the section to meet the objections thereto, or notify us in writing that you assume all responsibility and liability of any kind or character, civil or criminal, which may arise from the installation of same."

This was your letter of August 23rd, and it contains an ultimatum [1119] unless we change the design, the District changes the design, that you will cease work or that we must write you as a condition of going on that we assume full responsibility, civil and criminal; it is true you made that statement in that letter, didn't you?

A. That is what it says.

Q. "We are not now excavating in the headings of the tunnels on either the easterly or westerly end thereof; and we do not believe it wise to resume excavation therein until such time as you advise us whether or not you propose to alter or modify type A tunnel construction, as in the event a change is made in same,

(Testimony of Stephen Davidson Bechtel.)

the excavation can be made to conform to such altered design."

Now, Mr. Bechtel, giving consideration to that paragraph, you had approximately at this time, say 900 feet, somewhere in the neighborhood of that, of excavated tunnel supported on timbers in each of the bores which had been excavated, Type A section, which had been excavated under the method that you adopted to drive these tunnels, you say you had stopped work at this time for the purpose of seeing whether the district would permit you to install some other design, thicker design, heavier, stronger design; what did you propose to do with the 800 or 900 feet of tunnel which was timbered and designed to take the A section and which at that time you knew, in which area you knew the specifications required you to put in your A section —what did you propose to do with that 800 feet of tunnel?

A. That was a subject for a conference between our consulting engineers and the District's engineer. [1120]

Q. What did you intend to do?

A. I was not present at the conference; we referred that to men who knew more about designing than we did.

Q. You wrote this letter; you must have known what you intended to do?

A. No; I do not recall.

Q. You do not recall? A. No.

(Testimony of Stephen Davidson Bechtel.)

Q. You do not know what you were going to do with 1800 feet of tunnel, or thereabouts, in which there was just these concrete rings and a little work which was started in July,—I think Mr. Larson said about two or three hundred feet in the two tunnels; you were going to have to—if you made those tunnel linings thicker, you were going to have to move all that timber back, reset it, or else make a smaller tunnel?

I do not recall that, Mr. Tinning; but I do presume that there would be other ways of accomplishing the same situation, by substantially increasing the quantities of reinforcing steel, putting in a slab in place of an invert, increasing the thickness of the slab, or increasing the member at the lower portion of the ventilating chamber in thickness, and reinforcing that with reinforcing steel or structural steel, so that you would have the same—you could accomplish practically any designing in that manner —I am presuming, now, you understand; but, as I say, that was a matter for engineering study, which had been made by Messrs. Tibbitts and Phillips, who in turn discussed it with your Mr. Boggs.

Q. Were you planning, at this time, Mr. Bechtel, to have the tunnel take the shape of a vermiform appendix, with one part of it at one size, and then a bigger, thicker tunnel in the other part——

A. I don't know some of the words you are using.

Q. Well, I am sorry. I thought, from this letter, you might understand it. You were planning, were

(Testimony of Stephen Davidson Bechtel.)

you not, to make the tunnel [1121] smaller in this portion where the timbers were?

A. I was not planning anything; we had some consulting engineers whom we had confidence in, and we subsequently discussed it with Mr. Boggs, and also, I believe, we discussed it with the Department of Public Works, with the PWA men in the Bureau of Public Roads; but, in direct answer to your question, I do not think it was contemplated to make any substantial change in the shape or thickness or clearances of those tunnels; and, further, from my understanding, my recollection, that it could be accomplished without affecting those matters seriously at all.

Q. At the time you were seeking to have the District modify the design of this "A" section, because you said the ground conditions were bad, you also thought the District could not require you to install the "B" section which was designed for extremely heavy ground?

A. If I said they could not require us to do it, the words did not truly reflect my thought. I think they could ask us or require us to do so; but it would change the basis of compensation to us, because it would then be a different job than we contemplated, which would entitle us to an extension of time and to an equitable, reasonable, fair price, as determined by the proper parties.

Q. Are you talking now about "B" section, or are you talking about this modified section that you

(Testimony of Stephen Davidson Bechtel.)

were hoping to get, under your letter of August 23rd?

A. I thought I was talking about the subject you asked for, namely, "B" section.

Q. You are testifying now, as president of Six Companies at this time you assumed if the District ordered you to place "B" section in these tunnels in accordance with your bid at the bid price, that it would be a modification of the contract, and that you would be entitled to a change in compensation and would be entitled to equitable relief?

A. If it was a substantial change. [1122]

Q. What do you mean by "substantial"? I am talking about "B" section just as it stood in the specifications.

A. You refer to going from 200 feet to 6000 feet, or 5820 feet. If you did that, I would personally be of the opinion it would be a change in the contract and as a matter of law—Well, you know better about that than I.

The Court: We will take a recess.

(Recess)

Mr. Tinning: Q. Mr. Bechtel, if I understood you with respect to the "B" section, in your previous testimony, you considered at the time you wrote this letter of August 23rd, that the District Engineer could not order the "B" section placed in the tunnel to any substantial extent beyond 200 feet, the quantity that was set up in the bid sheet as an

(Testimony of Stephen Davidson Bechtel.)

estimate on the quantity for bidding purposes; is that a fair statement?

A. No. I think he could order the entire section put in; but, if he did order the entire tunnel put in, in Section "B", if he substantially varied from the quantity indicated there, then a proper adjustment, a proper determination, should be made in that. Now, let me elaborate just on that——

Q. Well, before you do, may I ask one thing? You say "a proper adjustment." That is, you would be paid more money than your bid price; is that what you mean—on the "B" section?

A. If that is indicated that that was the proper thing to do.

Q. Well, I am asking about the contract provision.

A. Well, I don't know it as a matter of contract. Any contract is subject to interpretation of law, I presume. I believe, while I am not an attorney—but the experience that I have had in years gone by—I think if there is a substantial variance in quantities—I am not talking of a 5 or 10 or 20 per cent variance—but, if you [1123] get a substantial variance, then an equitable adjustment of the contract should be made for that, if it substantially increases the cost of the job, because of it. At no time, did we endeavor, or want to, or refuse to construct this job in accordance with the wishes of Mr. Boggs. It was not our desire to say we would not build any number of lineal feet of Section "B";

(Testimony of Stephen Davidson Bechtel.)

but, when you speak of the amount we could be required to, under the contract, I think we were required to put it in, but the compensation would be a subject that would be another matter.

Q. In other words, after your explanation, you believe that, if you had been required to put in 1000 feet of Section "B," that you would have been entitled to receive from the District something more than the price per foot for "B" section that you bid and which was written into the contract?

A. That cannot be answered "Yes" or "No"; I don't know whether 1000 feet is "substantial"; it may or may not be; and, if it increased the cost, then we would probably be entitled to that; but that is a legal question.

Q. Well, if it all had been ordered in, the entire 6000 feet of tunnel in "B" section, do you think that that would have entitled you,—the Six Companies would have been entitled to any more money than the price that you bid on "B" section and signed a contract to construct it for?

A. I cannot answer that "Yes" or "No"; it depends upon the conditions; it depends upon the cost.

Q. In other words, you would not be bound by your bid if it cost more than the bid?

A. My understanding is that we would be entitled to a proper accounting and proper adjustment for the increased quantities beyond a reasonable portion. That is a legal question. I am

(Testimony of Stephen Davidson Bechtel.)

just a contractor. You know all the answers to these things .

Q. Thank you, Mr. Bechtel. You think, if it cost more than the [1124] bid price, you would be entitled to compensation. Did you also consider, when you were giving thought to the problem, that, if it cost you less than the bid price per foot for "B" section, you would give something back to the District?

A. I don't know as I gave it any consideration.

Q. You did not think about that?

A. Your point here is not that question; it is if we considered, in writing the letter; but the bid was another point.

The Court: Don't occupy any time upon the basis of giving anything back.

Mr. Tinning: Well, I didn't want to be misled, your Honor.

Q. Mr. Bechtel, I would like to refer you and read to you, in view of your testimony about "B" section, paragraph "B" of Section 1 of the specifications, which appears on page one:

> "Estimates of Quantities. Where estimates of quantities are given on the Proposal Form, or in 'Notice to Contractors,' or in any contract executed hereunder, it is hereby declared and shall be understood that such quantities are approximate only, being given as a basis for comparison of bids. The District does not expressly or by implication agree or guarantee

(Testimony of Stephen Davidson Bechtel.)

that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, or to omit portions of the work as may be deemed necessary or expedient by the District Engineer."

You had that in mind,—that provision,—when you bid, didn't you? A. Probably did.

Q. Well, you did, didn't you; you read the specifications? A. We read the specifications.

Q. With respect to the liability of the contractor, in your letter of August 23rd you said, if you proceed, the District will be civilly or criminally liable for any of the difficulties you had. [1135] I will refer to Paragraph "K" of Section 6 of the Specifications, which appears on page 6:

"Contractor's Liability: On all work the Contractor is to assume all liability of every kind or nature, arising from said work, either from accident, negligence or any cause whatsoever during the progress of the work and before the final acceptance thereof, and shall indemnify and hold the District harmless therefrom, and the bonds given by the Contractor shall hold and secure the said District free and harmless from any or all damage or expense whatsoever."

Did you have that section of the specifications in mind when you wrote this letter in which you

(Testimony of Stephen Davidson Bechtel.)

stated that you feared that the permanent lining that you contracted to build might cause you cost or expense during the time you were constructing the remainder of the tunnel?

A. I do not recall that; but we probably did. Now, on that point, in explanation of that point, I want to point out that we were advised verbally—I was, by Mr. Tibbetts, that the hazard of constructing type "A" in that formation that had been encountered up to that time, and particularly where we started to set the timbers back, was a real hazard, and that there possibly was criminal responsibility involved, and that we should be very careful, we should check that point and do everything we could not to make ourselves involved, not to get ourselves involved at least knowingly in a situation where there might be liability.

Q. Now, Mr. Bechtel, your letter was referring to the permanent lining; and on the matter of setting the timbers, you selected your own method of setting the timbers, and you found, at this time, that you had to set them back, and you were worried about the results that were involved in that, but that had nothing to do with your permanent lining or strength of it?

A. Well, Mr. Tinning, [1126] it did, in this way: as this tunnel was driven, the timber was set back a certain distance,—if I remember properly, about 3 inches outside of the neat lines; that is customary in driving the tunnel, because you expect it to take

(Testimony of Stephen Davidson Bechtel.)

some weight, to take some weight; and, instead of taking a nominal amount of weight which we expected as the tunnel progressed, it took a substantially larger amount of weight, greater weight; that was a condition which became apparent, and we addressed a letter—After we had these engineers,—Mr. Tibbitts and Mr. Phillips,—review the matter, they pointed this matter out; so that, at that time, we began to get considerably concerned over it,—over the hazard of setting the timber, trimming the timber, and the responsibility for it, and the effect of the weight it would have to stand; and it was after our discussions on the matter with Mr. Boggs, and endeavoring to avoid a lot of legal actions, et cetera. In any construction job, these changes come up; there are changes made, and the engineer sits down with the contractor, and the contractor sits down with the enigneer, and the engineers usually don't have the advice of a lot of counsel, and the whole thing is done as a matter of equity and a matter of construction procedure.

Now, what happened here when we started to proceed? We tried to follow it through in that way; but we could not do it. Why couldn't we do it? Because there was a board of directors and because there was the District's attorney,—Mr. Tinning,—you; and you would not, in my opinion, permit things to go along in a normal way, which interfered with our progress; and that was one of the

(Testimony of Stephen Davidson Bechtel.)

causes of the delay; and it became more apparent as time went on.

Q. Mr. Bechtel, I seem to be the point of your remarks at this moment. In other words, because the District required you to build the tunnel in accordance with the plans and specifications in your contract,—the contract entered into by the Six Companies that you [1127] have told us about, and their constituents of long experience—because this District desired you to build it in accordance with the plans and specifications, you think the District was inequitable?

A. No; but I do say that, when you get a condition where the District's Engineer is not going forward in an engineering way, not making decisions and delaying decisions because of necessity of discussing it with a board of directors and discussing it with the District's attorney, you affect all of the secondary effects of this thing and delay the thing, and affect the construction of the job; then it is serious; and we tried for months and months and months to carry this thing as a construction procedure; we tried, with our consulting engineers—they had their discussions with Mr. Boggs, as Mr. Boggs will undoubtedly in due time testify, and they did not get any place at all; and, secondly, long discussions about getting approval from the United States Government, from the PWA people, from the Reclamation people.

(Testimony of Stephen Davidson Bechtel.)

Q. If you have thoroughly relieved your mind, let's get back to the question.

A. Well, I think it is very pertinent to this project; it has a very definite effect upon the progress of this work.

Q. I am going to ask you if there is one word in your letter of August 23rd respecting the resetting of timbers. Your whole letter is directed to the design of the finished section, is it not, which you desired to have modified?

A. I think that is correct. May I see the letter?

Q. There isn't any question about that, I think, Mr. Bechtel.

A. I think you are right.

Q. What you have been telling us about is the question of resetting timbers, putting them back,—that is what Mr. Tibbetts told you was dangerous; he did not tell you the design was dangerous, did he? A. Yes, he did. [1128]

Q. He did? A. Yes.

Q. Well, what did the thickness of the design have to do with resetting timbers?

A. Well, the thickening of the design for the area ahead there, which, as I understood it, was recommended to your District Engineer.

Q. What did it have to do with resetting timbers?

A. In the area, in the matter of resetting timbers——

Q. Was there anything regarding timbers in the letter of August 23rd?

(Testimony of Stephen Davidson Bechtel.)

Mr. Smith: Just a moment. Let the witness finish.

Mr. Tinning: The witness answered everything but the question.

Q. Mr. Bechtel, was there anything in this letter of August 23rd, 1935, that had to do with the resetting of timbers, that was not mentioned? You have mentioned it twice here—that was not mentioned there. You are talking about the permanent design of the permanent arch?

A. I presume——

Q. Will you answer the question "Yes" or "No',' and then explain?

A. You said I mentioned it twice; but, in writing a letter, it seems to me that you must consider the conditions which lead up to it and the condition subsequent thereto, to get the true reflection of the letter.

Mr. Tinning: We ask the answer of the witness go out as argumentative.

Mr. Smith: I submit the answer was called for. I think it is a proper explanation.

The Court: Let's proceed, gentlemen.

Mr. Tinning: Q. Mr. Bechtel, you stated that you thought that you would have extra compensation if you had to put in "B" section in any substantial amount above 200 feet?

A. Let me correct you. I don't think I said that: that it was contemplated in any [1129] particular amount. You asked the question if it was increased,

(Testimony of Stephen Davidson Bechtel.)

if the whole tunnel was put in "B", would we then be entitled to increased compensation; and I say "Yes."

Q. I will read you the provisions of Paragraph "G" of Section 32 of the Specifications now in evidence, which appear on page 61:

> "Types of Tunnel Section: Two typical tunnel sections are shown on the plans. The District Engineer shall determine which section shall be used in any specific location in order to meet varying conditions which may be encountered. In general, it is expected that the Type 'A' section will be used throughout the major length of the tunnels, but if conditions arise which, in the judgment of the District Engineer, require the use of Type 'B' section, the Contractor shall make such modifications in construction as may be necessary."

You knew about this section when you considered this portion of the specifications, did you?

A. I presume I did. Yes, I read the specifications.

Q. As a matter of fact, the entire tunnel constructed by Six Companies up to the time they abandoned the work and quit the work and constructed by the other contractors who finished the work was constructed of "A" section, was it not?

A. I do not think any of it was constructed that way.

(Testimony of Stephen Davidson Bechtel.)

Q. In other words——

A. It was a modified "A" section that we placed in it, the details of which I cannot give you; but the conditions, the details of the construction, possibly were beyond, were outside of the "A" section neat, as specified in the plans.

Q. You were paid the monthly estimates on the "A" section, in accordance with your contract, for a period of approximately 15 months, and you never protested those payments?

A. There were some of the quantities that were protested; but substantially I should say [1130] it is correct.

Q. And the tunnel is there; the "A" section, for which you received these payments that I have referred to, is now standing up and being used by the public; that is true, isn't it?

A. It is standing up and being used by the public.

Q. And it was accepted by the State of California, and approved for acceptance by the United States, before it was turned over for public use?

A. I presume that is correct. [1131]

Q. Yes. Mr. Bechtel, I will hand you Plaintiff's Exhibit No. 49, in evidence, the letter which you wrote in behalf of Six Companies to the District, and delivered on August 28, 1935. There is one matter I have not gone into in detail in the letter of August 23rd, and which I would like to return to. You had in mind at the time that you were seeking

(Testimony of Stephen Davidson Bechtel.)

to modify the section that you referred to, strengthening the section, Section A, the same modification that if that was done the contractor would receive extra compensation for extra materials that were put into that section?

A. Our concern was to build a proper tunnel, and the matter of what the compensation would be would be determined in due time in a proper manner, and by a proper procedure, which had been discussed and was discussed immediately subsequent thereto, if there was any extra compensation we were entitled to, that would be determined. I think that I discussed with you and with your board our willingness to arbitrate any matters that were then existing, any controversy, and to submit the thing to any impartial people that would reasonably review the matter as to what the compensation would be; that that would be a matter of subsequent discussion and a matter of subsequent determination. What we were interested in doing was building that tunnel properly, to go right through and get the job finished, so that the job could be completed at the earliest practicable date, and that was our purpose and continued to be our purpose, and we worked right up to the time we were driven off the job with that purpose in mind.

Q. And at the time that you wrote the letter of August 23, 1935, will you say that you did not have in mind seeking additional compensation for additional work, labor, or material that was required in

(Testimony of Stephen Davidson Bechtel.)

the extra concreting that you desired to put into this arch?

A. I would say that I had framed the letter——

[1132]

Q. Will you answer "Yes" or "No," and then explain? A. I may have.

Q. You did have, didn't you?

A. I don't recall whether I had or not.

Q. Were you going to do it for the bid price?

A. That would be a matter of proper negotiations. I do not recall all of the circumstances surrounding the consideration. In discussing that letter, as you will remember, there were discussions going on at that time, and we were gravely concerned over the situation, I put hour after hour, and day after day, and night, going over the matter, not only myself, but in collaboration with Mr. Lawler and consulting engineers.

Mr. Tinning: I will ask your Honor to admonish the witness not to state things which are not responsive to the question. I asked a specific question.

Mr. Marrin: We submit the answer is entirely proper. He has gone on to explain his interpretation. He has a right to state what was in his mind.

The Court: I will allow it to stand. Proceed.

Mr. Tinning: Q. Did you expect extra compensation for extra work or material that might be required in thickening the arch?

A. I didn't know whether there would be extra compensation.

(Testimony of Stephen Davidson Bechtel.)

Q. Then is it your testimony that at the time you wrote this letter on August 23rd that you had no expectation of extra compensation if the District authorized the Six Companies to thicken that arch and modify the design?

A. I didn't know whether we were going to get extra compensation or not. We were endeavoring to have this thing done properly, we were endeavoring to follow out the advice of our engineers.

Q. You did not expect any extra compensation for what you proposed to do?

A. I did not say that. [1133]

Q. I asked you did you.

A. I say I didn't know whether we would get extra compensation or not, realizing that it would be decided on its merits in due time.

Q. What do you mean, by litigation, or arbitration, or what? A. We hoped for arbitration.

Q. In other words, you hoped to modify the design and then seek to get your claim paid, your claim for extra work?

A. If it developed in the final analysis that the costs were different, that the job was different, in fact, if there was merit in it, in fairness we would expect extra compensation; on the other hand, if it was found by an arbitration board or by a court, as you put it at ne time, of competent jurisdiction, it was not the case, we would not expect it, but we did want to build it properly, we wanted to build it expeditiously and economically.

(Testimony of Stephen Davidson Bechtel.)

Q. You wanted to get the concrete that you were putting in this one foot or more outside of the neat section, put inside the section where it became a paying quantity? A. Not necessarily.

Q. But outside it was not?

A. Not necessarily it was not. The recommendation of the Six Companies of California came in the form of discussions of our consulting engineers with your engineers; they are familiar with that; they will tell you that in due time, or I will get it for you if you would like to have it.

Q. We are interested in some 100 exhibits we have here now. We will now proceed. You have a copy of the letter of August 28, 1935, addressed to the Board of Directors, and this is already in evidence as Plaintiff's Exhibit 49, in which you refer to the contract which you entered into with the District, and state that

> "The parties intended, and the contract and documents above mentioned forming a part thereof, and the geological report, contemplated that the two tunnels included [1134] within the contract would be excavated through ground which was represented to be and would be found to be self-supporting for nearly the entire length of the tunnels."

Now, Mr. Bechtel, that is the first time in writing that the Six Companies ever advanced the claim to the District that the geological report indicated you would have self-supporting ground through the ma-

(Testimony of Stephen Davidson Bechtel.)

jority of the tunnel—that was the first claim that was made in writing, was it not?

A. I believe that is correct.

Q. And this was approximately more than fourteen months, I would say it would be fair to say fourteen months, approximately, after the work under the contract was commenced and it was the first time you ever claimed that the geological report had misled you; that is true, is it not?

A. Apparently that is correct.

Q. During which time you had driven some 2,000 feet of tunnel, 1,000 feet in each bore, you had built a large part of the outside work, and you had received something in excess of a million dollars in payment from the District. That is true, is it not?

A. I do not recall the figures, but if you say so I will concur with you.

Q. That is generally true. You say then that

> "The design and the plans and specifications call for the installation of Type A tunnel construction for 5620 feet of the total length of tunnels. We notified you in our letter to you dated August 23, 1935, that Type A tunnel construction is unsafe and inadequate for installation in the entire length of ground thus far encountered in the tunnels."

In other words, that you wanted to put in some other kind of lining in the tunnel; you are talking about the permanent lining. That is correct, is it not?

(Testimony of Stephen Davidson Bechtel.)

A. The permanent lining, and also, I think, one would have to consider in reading that paragraph the preparatory work to the construction, prior to the permanent lining, but that is an incidental point.

Q. You desire now to testify that that paragraph should also be [1135] interpreted to include a reference to timbering and the work of re-setting?

A. I think in being read it should be kept in mind that other matters are affected, are to be considered.

Q. You have told us that before. Now, we refer to paragraph 4 of the letter:

> "The character of ground encountered thus far in the excavation for the tunnels, with but slight exception, has been and is entirely and radically different from the character of ground represented to the contractor as that which would be encountered, and is likewise radically different from the character of ground which was contemplated by the specifications, as is apparent from the terms and conditions set forth therein. By reason of this fact we have been required to do additional work, supply additional materials, and have been put to great additional cost and expense not contemplated or intended by the contract, and not intended to be borne or assumed by the contractor in the construction of the tunnels. You are hereby notified that we, as contractor, now do claim

(Testimony of Stephen Davidson Bechtel.)

and will continue to claim against you for the entire additional cost and expense and the reasonable value, including a reasonable profit, of the additional work to which we have been and will be put, if we continue with the performance of our contract for construction of the tunnels."

Now at that time, that was the first time you claimed additional compensation, that is correct, is it not? A. I believe it is.

Q. In writing. And at that time, five days after your letter of August 23rd you were claiming additional compensation, but you say when you wrote your letter of August 23rd that you did not have that particularly in mind, that was something for the future?

A. This matter became of increasing concern to us.

Q. During those five days?

A. During the entire period of consideration, both from the time it became apparent that we had to trim [1136] and set back the timbers, and the ensuing period for several months in there it was an increasing concern.

Q. That concern had increased sufficiently so that from August 23 to August 28 it began to take a financial phase; on August 23 it was the basis of a desire of doing the job economically, one that the District would be proud of, and on August 28th you were desiring compensation for the extra work?

(Testimony of Stephen Davidson Bechtel.)

A. In addition to the other points.

Q. In addition to the other points? A. Yes.

Q. Then the next paragraph of the letter:

"At this time we are unable to furnish an exact detailed statement of the amount of our claim. It will include the reasonable value, including all costs and expense to which we may have been heretofore or may be hereafter put, of all additional excavation, timbering, concreting, and labor and materials of any kind or character occasioned thereby, including any and all items attributable thereto of any kind or character."

Now, by that term you refer to all of the material that was taken out, outside of the neat concrete line area, the area in which the timbering was installed, and timbers that you placed in, the concrete that you placed between the timbers; that is all included in what you had in mind as an itemized statement?

A. That should be all considered in determining the final cost or proper compensation, if any.

Q. Even though at the time you went underground in the proposal for this bid Mr. Larson said that he expected to use timber in the first 760 feet of the tunnel and let it remain in? That is true, is it not?

A. I cannot tell you exactly the thought that was in back of this thing, but a reasonable interpretation that I would give at this time is we would be entitled to the reason- [1137] able value of the in-

(Testimony of Stephen Davidson Bechtel.)

creased cost we were put to by conditions which were outside or contrary to the contract which we had made, and that would be our only expectation of getting that actually in the final determination.

Q. "You are further advised and notified that you are in default in performance of your obligations under our contract with you by reason of your failure to furnish necessary lines and grades and any other engineering which you are obligated to furnish under the terms of the contract."

Now, with reference to that, Mr. Bechtel, it is true, is it not, that as early as December 26, 1934, you had requested and demanded additional engineering and that on the 3rd of January, 1935, the District Engineer had told you that the engineering which was furnished by the District would continue just as it had been furnished previous to your written request of the 26th of December, 1934?

A. Yes, but that is not conclusive, it is always proper—it might be that he was wrong, and if so, we would be provided compensation in due time, and we are here reiterating our claim, our contention, for adequate compensation for that reason.

Q. And during all of the time that you were driving the tunnel you continued to furnish the work of engineering that was requisite to the performance of your work just as you had done it prior to the 26th of December?

A. Yes, we continued to do it, with the belief

(Testimony of Stephen Davidson Bechtel.)

that the District was obligated to do it, which we told them they were obligated to do, and which common practice required that they do, and we continued to do that, in order to see that this job went forward.

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.)

[1138]

Afternoon Session

Wednesday, April 27, 1938

2 O'clock P. M.

STEPHEN DAVIDSON BECHTEL

Cross Examination (continued)

Mr. Tinning: Q. Mr. Bechtel, it is a fact, is it not, in any of the written requests that were made for an extension of time up to and including your letter of August 28, 1935, you made no reference to any alleged delays in receiving decisions from the District Engineer?

A. I don't recall any, Mr. Tinning.

Q. It is also a fact that, at no time to and including the 13th day of June, 1936, when Six Companies ceased work and prepared a purported notice of rescission, did Six Companies in writing ever make any complaint or statement or objection to the District that it had been delayed in progress

(Testimony of Stephen Davidson Bechtel.)

of the work by reason of the delay in the rendition of decisions by the District Engineer?

A. I believe that Mr. Price——

Q. In writing?

A. No. However, I believe that Mr. Price, in discussing the various matters on the job with Mr. Boggs, told him about the delays,—that the delays in getting decisions was affecting the work.

Mr. Tinning: We ask that the answer go out, your Honor, as not responsive.

The Court: He answered "No", and made the explanation.

Q. Is that correct? A. Yes.

The Court: The answer was "No" as to the written——

Mr. Tinning: But he said he believed someone else——

The Court: What he believes may go out.

Mr. Tinning: Q. Mr. Bechtel, referring now to Paragraph 7 of Plaintiff's Exhibit No. 49, the letter from Six Companies to the District dated August 28, 1935,—which reads as follows: [1139]

> "You are further notified that we have and assert a valid claim for an extension of time for the performance of our contract arising from the causes heretofore stated to you in our request for such extension dated June 10, 1935, and in addition to the extension of time requested therein, we now assert a right to and request such additional extension of time as

(Testimony of Stephen Davidson Bechtel.)

may be necessary to complete the contract, in the event that we continue to perform same, based upon the following reasons in addition to those heretofore asserted—"

Now, that is the first time that you have advanced, on behalf of Six Companies to the District, in writing, a statement that you were entitled to an extension of time due to ground conditions, is it not? A. No; I wouldn't so interpret it.

Q. When did you first, in writing?

A. The June 10th letter was sent to the District in confirmation of the discussions which I had had with Mr. Boggs in Mr. Price's presence, and this is a further elaboration on that. I believe that letter said that we may subsequently give you a more fully detailed statement of the reasons why we are entitled to an extension of time.

Q. That letter of June 10th is Plaintiff's Exhibit No. 45. Is it your testimony that that letter stated you had been delayed by heavy ground conditions?

A. May I see it, please, Mr. Tinning?

Q. I will read you the letter, but I won't read the address:

"Dear Sirs:

"Pursuant to the provisions of subsection C of Section 4 of the Specifications for the construction of the Broadway Low Level Tunnel, said section 4 having to do with the subject of time, we hereby make written application for

(Testimony of Stephen Davidson Bechtel.)

an extension of the time for completion of the work covered by the contract in the amount of one hundred eighty days.

"Said demand is based upon the provisions of said subsection C of section 4, and upon the grounds that the work has been delayed [1140] by Acts of God, stormy and inclement weather, and other reasons beyond our control which will have unavoidably delayed the work.

"The other reasons above mentioned may be made the subject of a detailed statement thereof by us at a later date."

Is there anything in that letter, Mr. Bechtel, that stated, in writing, that you claim to have been delayed in your work by unanticipated heavy ground conditions? Will you answer "Yes" or "No"?

A. I think it is difficult to answer that "Yes" or "No", Mr. Tinning.

The Court: Q. That letter that he has just read, coupled with the letter that you have there—that is the first writing on this subject?

A. Those two, yes.

Mr. Marrin: Mr. Tinning, I think it would be fair, in connection with the next question, to draw his attention to the letter of July 26, 1935.

Mr. Tinning: Yes.

Q. It is true, Mr. Bechtel, that the July 26th letter—in that letter, you referred to the ground conditions being far worse than you anticipated?

(Testimony of Stephen Davidson Bechtel.)

A. I do not carry that letter in my mind; but, if you say it is so, that makes it so.

Q. It is a fact, is it not, and it was called to your attention this morning?

A. Apparently so.

Q. There is nothing else beside the reference in the letter of the 26th of July that antedates the letter of August 28th, 1935?

A. Except the reference to the June 10th letter.

Q. You were asking for action on that letter; and, during the month from June 10, 1935, to July 12, 1935, you submitted no further reasons, in writing? A. I think that is correct.

Q. Subparagraph "B" of paragraph seven of your letter of August 28th reads as follows: [1141]

> "Inadequacy and unsafety of the design in accordance with our letter to you dated August 23, 1935;
>
> "(c) Additional work required to be done not included, intended, or contemplated by the contract, plans and specifications."

The letter of August 23rd and the letter of August 28th were both in 1935, and were the first time that you had referred at any time, in writing, to having to do additional work; that is true, is it not? A. I think that is correct.

Q. It is also true that the same letter was the first time that you ever had claimed there was any inadequacy or unsafety or insafety in the design?

(Testimony of Stephen Davidson Bechtel.)

A. Yes, with the exception of the discussions which our consulting engineers had with Mr. Boggs.

Q. I am talking about writings.

A. I said "Yes."

Q. The discussions with your engineers were some time after the first of August, were they not?

A. I believe that they were.

Q. Isn't it a matter of fact, Mr. Bechtel, that Mr. Tibbitts visited the ground on the 9th of August, 1935? A. I don't know the date.

Q. You have not checked that up?

A. No; I have not checked it up.

Q. We will now proceed to the next paragraph of the letter,—paragraph 8:

> "By reason of the facts asserted in this letter a right to rescind our contract with you has arisen in our favor, but we do not desire to exercise such right unless it is absolutely necessary, as we consider that it is the primary purpose and object of the District to complete the tunnel and the entire project as speedily as possible. If we exercise our right to rescind at this time, it will result in great delay to the project and might result in loss of a portion of the work already done in the construction of the tunnels. We are anxious that the work be completed, and to [1142] complete same for you; and we assume that you are of the same mind."

(Testimony of Stephen Davidson Bechtel.)

Now, when you wrote this letter on August 28, 1935, you knew, according to your letter, that you had a right to rescind?

A. We were so advised by our counsel.

Q. And you had legal advice?

A. That is correct.

Q. And that legal advice, having had that, you wrote this letter? A. That is correct.

Q. And you also had legal advice when you wrote the letter of August 23, 1935?

A. That is right.

Q. Did you also have legal advice when you wrote the letter of July 26, 1935?

A. Yes. I think we had it practically throughout the entire year of 1935,—if that clarifies the point.

Q. Did you have legal advice when you wrote the letter of December 26, 1934, requesting the District to furnish additional engineering?

A. I don't recall; but I presume that we did.

Q. But, notwithstanding the fact that, on the 28th day of August, 1935, you were advised and so stated to the District that you had a right to rescind, you continued to work on these tunnels until the 13th day of July, 1936,—ten months later?

Mr. Marrin: June.

Mr. Tinning: June, yes.

The Witness: A. Yes. My explanation of that —I might comment on that: that this matter was considered by the Board of Directors of the Six Companies of California, and we had advice that

(Testimony of Stephen Davidson Bechtel.)

we were entitled to, or were privileged to, under our contract, stop,—refuse to go on; and to claim damages or costs for the work done to that time. In spite of the fact we were advised we had a right to do that, our board of directors as a whole favored going on,—desired to go on and complete this job; and we were in hopes that we could negotiate the matter out with the District on an equitable, [1143] fair, reasonable, basis; and we continued to hope so until June of the following year.

Q. Under the terms of the contract?

A. Under the terms of the contract.

Q. And during the succeeding ten months, to and including May of 1936, you received payments monthly from the District for the quantities and proportion of the work performed by you?

A. Yes; and in further explanation of that, I might comment: that we continued, on to the time until we finally were driven off the job, to negotiate the matter out with the District Engineer, with you, with the Board of Directors, with the PWA; and we had always hoped that we—that the matter could be amicably and reasonably settled with you, and continued in that hope and that expectation; and I also might comment that we continued to pour money into the hole for month after month, and not small money but hundreds and hundreds of thousands of dollars, to carry the work forward.

(Testimony of Stephen Davidson Bechtel.)

Q. But you were paid in accordance with the terms of the contract, each month from August, 1935 to and including the payment that you received in May of 1936, covering your May estimate, in accordance with the terms of the contract?

A. No. We were paid certain sums of money that were given us with your typed, or your regular monthly estimate, that paid in part for the work that was done; and we had notified you several times, in these various letters, up to date and subsequent letters, that it was not in full compensation; we never considered it was in full compensation; and you knew it was not in full compensation.

Q. Well, Mr. Bechtel, I object to your stating what I knew.

A. I say "You"—"The District"—because we had sent them letters.

Q. You mean you made certain communications; and, to follow that [1144] subject a little further, you were advised a number of times by the District that the District considered you were bound under the contract, and it was your duty to proceed?

A. That is correct.

Q. Now, coming back to the letter and reading paragraph 9:

> "We invite your consideration to the various matters set forth in this letter, but must inform you at this time that if we continue with the work it will be only upon the following conditions:

(Testimony of Stephen D. ridson Bechtel.)

"(a) That provision be made immediately to pay us the reasonable value of the additional work we have been called upon to perform, or which it may be necessary to perform hereafter."

Was there any provision made at any time subsequent to the delivery of this letter on August 28, 1935, by which the District agreed to pay you anything additional?

A. No; but in explanation of that, one has to consider the subsequent matters that took place,—the cave-in,—the unforeseen cave-in that night that this letter was delivered to your Board of Directors; the negotiations which transpired for the next two or three months, at our instigation and also with the cooperation of your Board, and your Mr. Boggs, endeavoring to find a solution to this mutually difficult problem.

Q. Paragraph (b)—this was a condition upon which you would proceed with the work:

"An extension of time be granted immediately which will enable us to complete the work without penalty unless delay hereafter occur which is due to our fault."

Now, no extension of time was granted?

A. No; we were told by Mr. Boggs, subsequently, in November—I was told, as I reviewed here last Friday, that we were entitled to an extension of time,—such an extension of time.

(Testimony of Stephen Davidson Bechtel.)

Q. You never received an extension of time?

A. No.

Q. And you continued with the work?

A. That is correct. [1145]

Q. And there was no discussion of extension of time from the time this letter was written on August 28, 1935, until this complaint which you say occurred in November of 1935?

A. If there were, I am not familiar with them.

Q. So far as you know?

A. I do not. None that I recall.

Q. And work continued?

A. That is correct.

Q. Section (c):

> "Henceforth you perform all the necessary and proper engineering work, including the giving of all lines and grades, and assume responsibility for all engineering work which we have already performed and pay the cost of same."

Was any change made, in the engineering arrangement, after the delivery of this letter of August 28, 1935, up to and until the time that Six Companies ceased the work on the 13th of June, 1936?

A. No; it continued to be not as required or anticipated.

Q. The statement you would not continue to work on the tunnel unless these conditions were

(Testimony of Stephen Davidson Bechtel.)

met was a statement that you made at that time but you did continue the work?

A. Yes, we continued for the reasons I outlined here before; and after very careful consideration of our board of directors and the concurrence of all of them that we would proceed even though our legal counsel had advised us that we did have the right to stop work; we were not obligated, under the contract, to proceed, but that we of the board of directors desired to complete this job if it was possible at all.

Q. We will now proceed to paragraph 10 of the letter:

> "We will proceed with installation of type 'A' tunnel construction in the excavated portion of the two tunnels from the westerly end thereof, subject to the conditions specified in our letter to you dated August 23, 1935. We will do this for the purpose of preventing any loss that might otherwise occur of the excavated [1146] portion of the tunnels in which concrete has not yet been installed, unless notified by you to cease such work. We will not perform any other work in the construction of the tunnels under our contract with you unless notified within a reasonable time after receipt of this letter that the conditions set forth hereinabove are satisfactory and will be met by you."

(Testimony of Stephen Davidson Bechtel.)

At any time subsequent to August 28, 1935, did the District advise you that it would meet the conditions which you sought to impose by that letter?

A. No; it did not.

Q. And you proceeded with the work?

A. We did. [1147]

Q. In order to complete the chronology, Mr. Bechtel, is it true that this letter was delivered to the Board of Directors of the District on August 28th, some time in the afternoon, I think the time was 3:50 in the afternoon, at which time there was a meeting between the Board of Directors of the District, in which a number of representatives of the Six Companies were present, including yourself, and I think Mr. Kaiser, and I think some of your present counsel, in which the matters referred to in the letter were discussed, and you were advised that the question of the adequacy of the design, etc., had been referred to an engineering board and that at a later date you would be advised what the position with respect to those matters was?

A. My recollection is it was referred to counsel for consideration.

Q. Referred to——

A. (Interrupting): You did most of the talking at that meeting, you will remember, Mr. Tinning.

Q. I do not recall; I think I heard you do considerable.

A. Mr. Kaiser did most of the talking that day.

Q. And then on the night of August 28th, I think

(Testimony of Stephen Davidson Bechtel.)

it was, some time around 7 or 8 in the evening that night, within a very few hours after this discussion of the adequacy of the design, and the engineering, and the different contentions that are set up in the letter had been discussed, there was a very serious cave-in of the north tunnel, in which three men were killed. A. Yes.

Q. That cave-in was not in a concreted portion of the tunnel, was it?

A. It was not. However, the footings had been concreted to that point.

Q. The footings were a concrete 5-foot wide strip upon which the arch was later poured; is that correct?

A. Upon which the side walls were first poured, over which the arch was subsequently poured. [1148]

Q. And supporting the arch they formed, you might call it, the bottom of the inverted horseshoe that formed the lining? A. Yes.

Q. And that burst of earth that came into that tunnel came from the timber which had been installed in the tunnel some time before and which were being re-set at that time by the crew that was working there to get the timbers back so that they would be safe in constructing the concrete lining as required by your specifications?

A. I cannot testify to that, Mr. Tinning; I had not been in that tunnel for several days prior to that cave-in, and anything that I might say would be a matter of observation thereafter, or from hearsay. I am not familiar with it.

(Testimony of Stephen Davidson Bechtel.)

Q. You do know that this cave-in was not in the permanent lining?

A. I observed that since that time.

Q. It was not in the lining which was referred to in your letter of August 23, 1935, and again referred to as inadequate and unsafe lining in your letter of August 28th?

A. It was preparatory to the liner which is involved there.

Q. Would you mind answering the question "Yes" or "No" and then if there is an explanation make it. The question was whether the slide occurred in a portion of the tunnel where the concrete lining, permanent lining had been installed.

A. A portion of the lining had been installed.

Q. Where the slide occurred?

A. The footing.

Q. The footing? A. Yes.

Q. Which were how deep?

A. I would say approximately five feet, four feet or five feet.

Q. High? A. Yes, on the side.

Q. And the timbers that failed were in the roof?

A. That is what I understand, but, again, that is from hearsay.

Q. So that there was no complete concrete lining at the place where [1149] the slide occurred?

A. That is correct.

Q. And the slide or cave-in occurred in temporary timbers which were installed by you precedent to placing the permanent lining?

(Testimony of Stephen Davidson Bechtel.)

A. It occurred in the timbers that were placed before the concrete lining was placed.

Q. The Six Companies put them in?

A. Yes, that is right, as I understand it.

Q. And it did not occur in the lining which you said in your two letters was inadequate and unsafe?

A. No, but in explanation of that I might comment that our letter of August 23rd was written in fear that such a situation might develop. We had been substantially scared by the advice we had gotten from our consulting engineers, they were afraid that something of that kind might happen if those timbers were set back, were moved, or were trimmed substantially, and it was growing out of that, their warning, that that letter was written, and this cave-in followed in due time, as you have outlined.

Q. Now, when you wrote that letter of August 23rd you knew that the dangerous condition was in the timbers due to the necessity of setting them back under the District's requirements—you knew that when you wrote the letter, your expert had told you that?

A. It was a type of timbering that was necessary to get the type of lining which we had been required to place.

Q. Now, you say that the footings had been poured. The Six Companies at this time, just a few days before the letter of August 28th, had started very active footwall operations, had they not?

A. Yes.

(Testimony of Stephen Davidson Bechtel.)

Q. And at the time that the accident occurred at the bottom of each, on opposite sides of the tunnel, a trench had been excavated which was lower than the bottom of the posts into which you planned to pour concrete fittings?

A. Probably it would be more properly [1150] described as the excavation necessary to place the concrete footings.

Q. Do you know as a matter of fact that that extended below the bottom of the posts so that the bottom of the trench was lower than the bottom of the posts that supported the arch to the earth?

A. I do not quite follow you.

Q. Don't you know as a matter of fact that those trenches that were prepared in which the concrete was to be poured were excavated, dug out, so that the bottom of those trenches was below the plumb posts that formed the side of the tunnel timber arch, the ring? A. I observed that subsequently.

Q. You did not know it at that time?

A. I had not been in that tunnel for several days, in that tunnel.

Q. And when those trenches were so excavated the bottoms of the plumb posts, the bottom posts, the vertical or nearly vertical posts were standing on a shelf of earth higher than the bottom of the trench which was excavated, so that the bottoms of those plumb posts were unsupported by any material except that which was directly below them?

A. I would not just put it that way. I might

(Testimony of Stephen Davidson Bechtel.)

observe that there was no excavated and unconcreted footing in the area of the slide. I observed that myself. Also I might observe that there was no difficulty experienced at any place where these footings had been excavated and unconcreted, and also that immediately following this slide these footings that had been excavated were concreted forthwith; that we started an aggressive program to get our footings ahead and anticipated lining at a very rapid pace, which is practical under the method which we have outlined and which we had anticipated following.

Mr. Tinning: If your Honor please, I offer in evidence a letter dated August 30, 1935, written by Wallace B. Boggs, Dis- [1151] trict Engineer, to Six Companies of California, as Defendant's Exhibit MM. It reads as follows:

DEFENDANT'S EXHIBIT MM

August 30, 1935

File: Broadway Tunnel
Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

You are here hereby advised that a very critical situation exists with respect to the stability

(Testimony of Stephen Davidson Bechtel.)

of the timbered section of the tunnels as a result of the large amount of footing trench now open.

There is now between 900 and 1,000 feet of this trench open, with varying depths below the timber footings. Much of this trench is filled with water, increasing the instability of the timber supports. It is extremely probable that the continuance of this condition will cause failure of timber supports, and it is possible that future failure may already have been induced.

You are advised that Joint Highway District No. 13 of the State of California will hold you strictly responsible for any damage of any sort whatsoever that may result from this condition or from any other inadequacy of the timbering to support the excavation.

Yours, truly,

(Signed) WALLACE B. BOGGS,
District Engineer.

WBB/VE

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. MM. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit MM.")

If your Honor please, I offer in evidence a letter from Six Companies of California addressed to Mr. Wallace B. Boggs, District Engineer, on August 31,

(Testimony of Stephen Davidson Bechtel.)

1935, as Defendant's Exhibit NN. I will read it. (Reading): [1152]

DEFENDANT'S EXHIBIT NN

Builders of Low Level Broadway Tunnel
Six Companies of California

Field Office Post Office Box 120
Berkeley, California

August 31, 1935

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Dear Sir:

We herewith acknowledge receipt of your favor of August 30th, relative to footing trench in the tunnels.

We checked this fully excavated footage late on August 31st, which measurements showed 339 ft. in the down-grade tunnel, and 306 ft. in the upgrade tunnel. At other places, where partial excavation had been made, none had gone far enough to expose the ground below the footings of the timber.

We poured approximately 200 lineal ft. of the above stated footage on August 30th in the upgrade tunnel, and on this date have completed pouring of the remainder of the open trench in this tunnel, namely, 106 ft.

It has obviously been impossible for us to pour the trench in the downgrade tunnel since

(Testimony of Stephen Davidson Bechtel.)

the cavein. However we are now planning to pour this open trench by pumping the concrete through the construction adit, and using buggies to transport it in the tunnel, just as soon as we consider it safe for men to work in the down-grade tunnel.

Our position with regard to our responsibility has been fully stated to you in our letters of August 23rd and 28th respectively.

Very truly yours,
SIX COMPANIES OF CALIFORNIA,
By (signed) T. M. PRICE
Project Manager

[Endorsed]: Received Sept. 4, 1935, 8:30 a. m. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. NN. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit NN.")

Q. The downgrade tunnel is where the cavein occurred?

A. The north tunnel.

Q. The north tunnel? A. Yes.

Q. Mr. Bechtel, so that the record may be clear, the adit is a cross-over drift from one tunnel to another and fortunately when this accident occurred there was such a drift beyond the point where the

(Testimony of Stephen Davidson Bechtel.)

slide occurred that opened the north tunnel into the south tunnel, through which the men were able to get out into the south tunnel? [1153]

A. Yes.

Mr. Marrin: I might say that letter is not signed by the witness, but by T. M. Price.

Mr. Tinning: I beg your pardon

Mr. Marrin: You did not read the signature.

Mr. Tinning: I will try to remember to do that.

The defendant offers in evidence a letter dated September 1, 1935, addressed by Six Companies of California to Mr. Wallace B. Boggs, District Engineer, and ask that it be marked Defendant's Exhibit OO. It is signed by Mr. Price. It reads:

DEFENDANT'S EXHIBIT OO

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office Post Office Box 120
Berkeley, California
September 1, 1935

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St., Oakland, Calif.

Dear Sir:

In the interest of safety, and in order to reduce the hazards connected with the work of trimming and moving tunnel timber supports

(Testimony of Stephen Davidson Bechtel.)

made necessary under the requirements of the plans and specifications for the Broadway Tunnels, to provide space for the minimum thickness of the concrete lining specified, it is suggested and we request that you direct us:

1. To complete the concreting of the unlined portions of the excavated tunnels with a crown height 6" lower than the crest of the present theoretical crown height.

   If this permission is granted, we will cut out six inches at each side of our present steel tunnel forms at the vertical tangent sections about ten feet above the base of the concrete lining.

   A neat transition as designed by your office will be used to joint to the present design section if this permission is granted.

   This change will result in the addition of approximately 1,000 cubic yards of concrete in the open section of about 1,800 feet of unlined tunnel that will be affected.

2. To allow tunnel timbering, including posts, segments and wall plates, to project a maximum of 4" into the theoretical minimum thickness of concrete lining called for in the plans; provided:

(Testimony of Stephen Davidson Bechtel.)

a. In each six-foot length of tunnel, openings of twelve inches or more in width, between sets, are made available for concrete, and are as great in area as those lost by the intrusion of the timbers;

b. The concrete rings between the sets are continuous and not less than twelve inches in width uninterrupted by wall plates or other obstructions or by the arch segments not being in line with the posts;

c. That whenever the thickness of concrete in front of the sets is reduced, then reinforcing steel sufficient to cause the ring concrete to react in conjunction with the arch concrete shall be furnished and placed by the contractor.

Very truly yours,
SIX COMPANIES OF CALIFORNIA
By (signed) T. M. PRICE
Project Manager

[Endorsed]: Received Sept. 2, 1935. Joint Highway District No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. OO. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1154]

(The letter was marked "Defendant's Exhibit OO.")

(Testimony of Stephen Davidson Bechtel.)

If your Honor please, the defendant now offers in evidence a letter from Six Companies of California, signed by T. M. Price, Project Manager, dated September 3, 1935, addressed to Mr. Wallace B. Boggs, District Engineer of the District, and ask that it be marked "Defendant's Exhibit PP." It reads: [1155]

DEFENDANT'S EXHIBIT PP

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office Post Office Box 120
Berkeley, California
September 3, 1935

Mr. W. B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Dear Sir:

Under date of September 1st, we wrote you a letter concerning changes in plans and specifications for concrete lining of the excavated portion of the Broadway Tunnels.

By this letter we advise you that our letter of September 1st, above mentioned, was written and shall be considered by you subject only to the following further conditions:

1. That in making the suggestions contained therein, we assume no responsibility

(Testimony of Stephen Davidson Bechtel.)

or liability of any kind or character for any design suggested by us or the safety thereof, in the event you direct us to carry out the things stated in our letter.

2. That we reaffirm and state our position to be as stated in our letters to the Board of Directors of your District dated respectively August 23rd and August 28th, 1935.

3. That any rights that we may have, heretofore or now existing, in our relationship with you under our contract with you will not in any manner be prejudiced or altered in the event that you direct us to proceed, as suggested in our letter of September 1st.

4. It has been called to our attention that a large amount of additional reinforcing steel is now being placed in the concrete which is now being installed in the tunnels and also that more cement is being required to be placed in the concrete than is called for or required under the plans and specifications. You are hereby advised that the placing of such steel, the furnishing of more cement, and all other items of work, labor, or materials performed or furnished in connection with the prosecution of the tunnel work are being furnished solely upon the basis that the contract, plans and specifications are being varied

(Testimony of Stephen Davidson Bechtel.)

from, and we are entitled to additional compensation by reason of these particular facts as well as by reason of the matters and things stated in our letters of August 23rd and August 28th above mentioned.

Yours very truly,

SIX COMPANIES OF CALIFORNIA

By (signed) T. M. PRICE

Project Manager

[Endorsed]: Delivered by Barneyback. Received Sept. 3, 1935. Joint Highway Dist. No. 13. 5 p. m.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. PP. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit PP.")

The defendant now offers in evidence, if your Honor please, a letter addressed to Six Companies of California by the Joint Highway District, dated September 5, 1935, and ask that it be marked Defendant's Exhibit QQ. It reads as follows:

DEFENDANT'S EXHIBIT QQ

September 5, 1935

Six Companies of California
155 Sansome Street
San Francisco, California

Gentlemen:

The Board of Directors of Joint Highway District No. 13 has considered your letters of

(Testimony of Stephen Davidson Bechtel.)

August 23rd and August 28th, September 2nd and September 3rd, 1935. I am instructed to advise you that the Board of Directors have concluded that the design of the tunnel lining provided for in the plans and specifications is adequate in every respect for all of the conditions encountered and the materials at the site of the Broadway Low Level Tunnel, and that no variation, deviation or change will be made in the same, and that you will be held strictly to the performance of your contract of June 4, 1934 in accordance with the terms thereof, and the plans and specifications for the work included in your contract.

Further, the District denies all liability for any of your claims for extra work, labor, materials, cement or steel furnished or supplied by you in your work of construction under said contract.

Yours very truly,

(signed) HARRY M. STOW

Secretary

HMS:K

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. QQ. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk

(The letter was marked "Defendant's Exhibit QQ.")

(Testimony of Stephen Davidson Bechtel.)

Your Honor please, the defendant offers in evidence a letter dated September 5, 1935, signed by Wallace B. Boggs, District Engineer, and addressed to Six Companies of California, and I ask that it be marked "Defendant's Exhibit RR." It reads:

DEFENDANT'S EXHIBIT RR

September 5, 1935

Six Companies of California
Field Office
Berkeley, California
Attention of Mr. T. M. Price, Project Manager.

Dear Sir:

I am advised by you and Mr. O. W. Peterson, your engineer, that Six Companies of California, the contractor on the Broadway Tunnel Project, is planning to proceed with the pouring of concrete in tunnel bores using forms which will result in a permanent reinforced concrete tunnel lining which does not conform to the plans and specifications for the work.

You are hereby ordered to cease and desist in any such procedure as the same is entirely without authorization by this District and is a direct violation of your contract with the District. You are further advised that such work must not be performed and all steps on your part to perform such work as you have indicated you intend to perform, should immedi-

(Testimony of Stephen Davidson Bechtel.)

ately cease if the work is now in progress, and that any concrete tunnel lining placed in accordance with your proposal will be rejected by the District and will be ordered removed.

Yours very truly,

(signed) WALLACE B. BOGGS
District Engineer

WBB:K

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. RR. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit RR.")

If your Honor please, the defendant now offers in evidence a letter dated September 14, 1935, from Six Companies of California, [1158] addressed to Wallace B. Boggs, District Engineer, signed by T. M. Price, Project Manager, and I ask that it be marked "Defendant's Exhibit SS." It reads (reading):

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT SS

Builders of Low Level Broadway Tunnel
Six Companies of California
155 Sansome Street
San Francisco, California

September 14, 1935

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Dear Sir:

We desire to acknowledge receipt of your letter of the 5th instant.

Six Companies of California suggested the alternative plan outlined in our letter dated September 1st for concreting the tunnels for the purpose of making the construction operations safer and minimizing the damages which would result from exactly following the plans and specifications.

However, in view of the instructions contained in your letter, we shall proceed immediately to concrete the tunnels in strict compliance with the plans and specifications.

By doing so we do not waive any of our rights or any claims which we now have, or may hereafter have, against the District and you are notified that we shall claim and hold the Dis-

(Testimony of Stephen Davidson Bechtel.)

trict responsible for all damages resulting from this procedure.

Very truly yours,
SIX COMPANIES OF CALIFORNIA
By (signed) T. M. PRICE
Project Manager

[Endorsed]: Received September 14, 1935, 3:35 P. M.
Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. SS. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit SS.")

Your Honor, there are four letters here that have to do with the request from the contractor for authority from the District to permit the timbers to remain in at certain places, and there are a lot of figures, and I think counsel is agreeable to my introducing the letters and not reading the station numbers.

I now offer in evidence a letter dated September 14, 1935, [1159] from Six Companies of California, signed by Mr. Price, to Wallace B. Boggs, District Engineer, and ask that it be marked "Defendant's Exhibit TT. It reads:

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT TT

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office Post Office Box 120
Berkeley, California

September 14, 1935.

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Dear Sir:

In accordance with the provisions of subparagraphs B and E, of numbered paragraph 5 of section 32 of the specifications for the construction of the Broadway Tunnel, your written permission is requested for the timbers to remain in the sections of the two tunnels hereinafter described.

The portions of the tunnels for which this permission is requested are described as:

	Down Grade	Up Grade
Arch Concrete	111+43 to 113+31	111+53 to 114+02
Footing Concrete		
Left	113+31 to 114+37	114+02 to 116+91
	114+92 " 116+00	118+59 " 121+59
	116+51 " 117+50	
	118+24 " 117+71	
Right	113+31 to 115+99	114+02 " 116+98
	118+34 " 118+66	118+16 " 118+42
		119+00 " 121+46

(Testimony of Stephen Davidson Bechtel.)

Concrete has already been placed in the sections above described; and, in addition, similar permission is requested for timbers to remain between stations 114+02 and 114+20, where concrete will be poured within the next twenty-four hours.

Very truly yours,
SIX COMPANIES OF CALIFORNIA
By (Signed) T. M. PRICE,
P:C Project Manager.

[Endorsed]: Received Sept. 16, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. TT. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit TT.")

The defendant now offers in evidence, if your Honor please, a letter dated September 16, 1935, addressed by Mr. Wallace B. Boggs, District Engineer of the District, to the Six Companies of Califor-
[1160] nia, and ask that it be marked in evidence as Defendant's Exhibit UU. It reads:

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT UU

September 16, 1935

File: Broadway Tunnel
Lining
Six Companies of California,
Field Office—P. O. Box 120,
Berkeley, California.

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

Receipt of your letter of September 14, 1935, is acknowledged.

The alternate plan suggested by you would constitute a change in the plans and specifications to meet conditions created solely by your method of operation in delaying the placing of the permanent reinforced concrete lining, during which period the temporary timber support has generally intruded into the area required for the permanent tunnel lining specified.

No rights or claims have arisen or can arise in your favor by reason of your performance of your contract with the District in accordance with the plans and specifications, save the right to payment for the work performed, and the District has made and will make all payment in accordance with the terms of the contract.

Yours truly,

(Signed) WALLACE B. BOGGS,
District Engineer.

WBB:VE
CC to Mr. A. B. Tinning, Attorney.

(Testimony of Stephen Davidson Bechtel.)

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. UU. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit UU.")

Defendant now offers in evidence a letter dated September 16, 1935, addressed to Six Companies of California by the District, and ask that it be marked in evidence as Defendant's Exhibit VV. The letter reads as follows: [1161]

DEFENDANT'S EXHIBIT VV

September 16, 1935

File: Broadway Tunnel
Timbering
Six Companies of California,
Field Office
Post Office Box 120,
Berkeley, California.

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

In reply to your communication of September 14, 1935, you are advised as follows:

In accordance with the provisions of subsections (b) and (e) of numbered subsection 5, Section 32 of the specifications, consent is hereby given to permit timbering to remain in the sections of the tunnels described in your

(Testimony of Stephen Davidson Bechtel.)

communication, subject, however, to the provisions contained in the specifications with respect to clearances outside of the concrete lining, and other requirements of the specifications.

In addition, this consent is extended to all portions of the excavation now open in each tunnel between the West Portal and the easterly ends of the full section excavation in the vicinity of Sta. 122 in the Downgrade Tunnel and the vicinity of Sta. 124+50 in the Upgrade Tunnel, subject to provisions contained in the specifications with respect to clearances outside of the concrete lining, and other requirements of the specifications.

Yours very truly,

(Signed) WALLACE B. BOGGS,

District Engineer.

WBB:VE

CC to Mr. Archibald B. Tinning, Attorney.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. VV. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit VV.")

The defendant offers in evidence a letter from Six Companies of California, signed by T. M. Price, dated September 16, 1935, addressed to Wallace B. Boggs, District Engineer, and ask that it be marked

(Testimony of Stephen Davidson Bechtel.)

"Defendant's Exhibit WW." The letter reads as follows: [1162]

DEFENDANT'S EXHIBIT WW

Six Companies of California
Field Office Post Office Box 120
Berkeley, California

Sept. 16, 1935

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster Street, Oakland.

Dear Sir:

In accordance with the provisions of subparagraphs B and E, of numbered paragraph 5 of section 32 of the specifications for the construction of the Broadway Tunnel, your written permission is requested for the timbers to remain in the following section in the up-grade tunnel:

Station 119+25 to Station 119+43.

Very truly yours,
SIX COMPANIES OF CALIFORNIA
By (signed) T. M. PRICE
Project Manager

P:C

[Endorsed]: Received J. H. D. #13. Sept. 17, 1935

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft.'s Ex. WW. Filed April 27, 1938.

(Testimony of Stephen Davidson Bechtel.)
Walter B. Maling, Clerk. By A. J. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit WW.")

The defendant offers in evidence a letter from Six Companies of California, signed by T. M. Price, to Wallace B. Boggs, District Engineer, dated September 16, 1935, and ask that it be marked Defendant's Exhibit XX. It reads as follows:

DEFENDANT'S EXHIBIT XX

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office Post Office Box 120
Berkeley, California
Sept. 16, 1935

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St., Oakland.

Dear Sir:

In accordance with the provisions of subparagraphs B and E of numbered paragraph 5 of section 32 of the specifications for the construction of the Broadway Tunnel, your written permission is requested for the timbers to

(Testimony of Stephen Davidson Bechtel.)

remain in the following section in the up-grade tunnel:

Station 114+20 to Station 114+30.

Very truly yours,

SIX COMPANIES OF CALIFORNIA

By (signed) T. M. PRICE

Project Manager.

P:C

[Endorsed]: Received Sept. 17, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. XX. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit XX.")

Your Honor, the defendant offers in evidence a letter dated September 17, 1935, signed by Mr. Price, as Project Manager of Six Companies of California, and addressed to Wallace B. Boggs, District Engineer, and ask that it be marked "Defendant's Exhibit YY." The letter reads as follows: [1163]

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT YY

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office—P. O. Box 120
Berkeley, California
September 17, 1935

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St.,
Oakland.

Dear Sir:

Correcting our letter of September 16, wherein we asked for timbers to remain in place from station 114+20 to station 114+30.

This should read "from station 114+20 to station 114+38."

Yours very truly,
SIX COMPANIES OF CALIFORNIA
By (signed) T. M. PRICE
Project Manager

P:C

[Endorsed]: Received Sept. 18, 1935. J. H. D. #13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. YY. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit YY.")

(Testimony of Stephen Davidson Bechtel.)

Defendant offers in evidence a letter dated September 17, 1935, addressed by Six Companies of California, signed by Mr. Price, to Wallace B. Boggs, District Engineer, and I ask that it be marked Defendant's Exhibit ZZ. It reads as follows:

DEFENDANT'S EXHIBIT ZZ

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office—Post Office Box 120
Berkeley, California
September 17, 1935

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St., Oakland.

Dear Sir:

In accordance with the provisions of subparagraphs B and E, of numbered paragraph 5 of section 32, of the specifications for the construction of the Broadway Tunnel, your written permission is requested for the timbers to remain in the following sections:

In the Down-Grade Tunnel—Footing Concrete.

Left-hand side, from station 116+00 to station 116+51.

Right-hand side, from station 115+99 to station 118+34.

(Testimony of Stephen Davidson Bechtel.)

In the Up-Grade Tunnel—Arch Concrete.
From station 114+38 to station 114+56.

Yours very truly,
SIX COMPANIES OF CALIFORNIA
By (signed) T. M. PRICE,
Project Manager

P:C

[Endorsed]: Received Sept. 18, 1935. J. H. D. #13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. ZZ. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The document was marked "Defendant's Exhibit ZZ.")

I think it may be said, so that we won't have to refer to this again, Mr. Boggs' letter authorizing portions of the excavated tunnel to have the timbers remain in crossed the letters of the 16th and 17th [1164] in the mail, as the receiving date shows.

Mr. Marrin: Yes. [1165]

Mr. Tinning: If the Court please, the defendant offers in evidence a letter dated September 16, 1935, addressed by myself to Mr. Max Thelen, Attorney at Law. I suppose it will be stipulated Mr. Thelen was acting for Six Companies at that time?

Mr. Marrin: Yes; and that you were acting for the District.

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: And I was acting for the District. We ask that the letter be admitted as "Defendant's Exhibit AAA."

(The letter was marked "Defendant's Exhibit AAA.")

Mr. Tinning: [1166]

DEFENDANT'S EXHIBIT AAA

September 16, 1935

Mr. Max Thelen
Attorney at Law
Balfour Building
San Francisco, California

Dear Mr. Thelen:

This letter will confirm our conversation of Saturday morning, September 14th, in which I advised you that the District would be willing to consider a request from Six Companies of California, the contractor, for permission to install the permanent reinforced concrete lining in the sections of the Broadway Tunnel bores now open, provided the State of California, the United States Bureau of Public Roads and the Public Works Administration agreed to such modification, upon the condition that the contractor waived all of the claims, contentions and demands set forth in its letters of July 26th, August 23rd, August 28th and September 3rd, 1935, addressed to the District, and

(Testimony of Stephen Davidson Bechtel.)

that if the contractor did not care to withdraw the claims, demands and contentions referred to that the District's position was that the contractor should proceed to construct the tunnel in accordance with the plans and specifications without further delay.

This letter is sent you as a matter of record of our conversation.

Yours very truly,

(Signed) ARCHIBALD B. TINNING
Attorney
924 Main Street
Martinez, California

ABT:EK

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Exhibit AAA. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: The defendant now offers in evidence a letter dated September 17, 1935, addressed by Six Companies of California and signed by T. M. Price, Project Manager, to Wallace B. Boggs, District Engineer; and ask it to be marked "Defendant's Exhibit BBB."

(The letter was marked "Defendant's Exhibit BBB.")

[Set forth in the Book of Exhibits at page 393.]

[1167]

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: The defendant offers in evidence a letter dated September 19, 1935, written by Wallace B. Boggs, District Engineer, to Six Companies of California; and ask that it be marked defendant's exhibit in proper order.

(The letter was marked "Defendant's Exhibit CCC.")

Mr. Tinning: (Reading) [1168]

DEFENDANT'S EXHIBIT CCC

September 19, 1935

File: Broadway Tunnel
E. P. Schedule--Lining
Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

Information is requested as to your proposed schedule and methods of procedure in connection with the tunnel operations at the East Portal.

The District Engineer considers that a very serious hazard to the lives of workmen and to the structures exists at the East Portal from the probability of slides at the faces and sides of the main excavation, especially if early rains occur.

(Testimony of Stephen Davidson Bechtel.)

Permanent concrete tunnel lining should be placed at once a sufficient distance to provide support against ground movement and backfilling around Portal Building walls should be performed as rapidly as building construction operations will permit.

You are advised that adequate measures should be taken by you at once to protect the structures in this vicinity and the men working on these structures from the dangers of slides.

Yours very truly,
(signed) WALLACE B. BOGGS
District Engineer

WBB/VE

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. CCC. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: The defendant offers in evidence a letter dated September 20, 1935, addressed by Six Companies of California, signed by T. M. Price, Project Manager, to Wallace B. Boggs, District Engineer; and ask that it be marked defendant's exhibit in proper order.

(The letter was marked "Defendant's Exhibit DDD.")

Mr. Tinning: (Reading) [1169]

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT DDD

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office Post Office Box 120
Berkeley, California

Sept. 20, 1935

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster St., Oakland.

Dear Sir:

We have your letter of September 19, relative to work at the east portal, and wish to advise that we are at present working three shifts ringing out the arch on both tunnels for a distance of about forty feet underground, and it is our intention, as soon as this is done, which we expect will be within a week, to drift for the walls the same distance we have ringed out, and to immediately form this with wood forms and get the concrete poured, so we can do the necessary backfill.

This work is being carried on three shifts per day, and will continue so until this work outlined is accomplished.

Yours very truly,
SIX COMPANIES OF CALIFORNIA
By (signed) T. M. PRICE
Project Manager

P:C

(Testimony of Stephen Davidson Bechtel.)

[Endorsed]: Received Sept. 21, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. DDD. Filed April 27, 1938. Walter B. Maling, Clerk. By A. J. Schaertzer, Deputy Clerk.

Mr. Tinning: The defendant now offers in evidence, your Honor, a special safety order issued by the Industrial Accident Commission of the State of California, on the 19th day of September, 1935, and received by the District on September 20, 1935——

Mr. Trefethen: Issued what date, did you say, Mr. Tinning?

Mr. Tinning: Issued September 19th; and received by the District September 20, 1935—and ask it be marked "Defendant's Exhibit EEE."

(The document was marked "Defendant's Exhibit EEE.")

Mr. Tinning: [1170]

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT EEE

T. A. Reardon, Chairman — Frank J. Burke, Secretary

Meredith P. Snyder

Frank C. MacDonald

Members

State of California
Department of Industrial Relations
Industrial Accident Commission
State Building
San Francisco

SPECIAL SAFETY ORDER REQUIRING REMEDYING OF UNSAFE CONDITION OF PLACE OF EMPLOYMENT

September 19, 1935

To: Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Whereas, it appears from the report of inspection, dated September 19, 1935, of operations, located at Broadway Tunnel, Oakland, a place of employment, made by L. K. Reinhardt, that a dangerous condition exists in said place of employment, to-wit, Maintenance of equipment, in violation of the safety orders issued by the Industrial Accident Commission, of the State of California, and that Joint Highway

(Testimony of Stephen Davidson Bechtel.)

District No. 13, is the owner or person having the custody, management, or operation of said equipment; and

Whereas, this Commission did on the ..... day of ..... 19....., serve notice on said ..... with a copy of said inspection report attached, directing him or them to show cause, if any he or they had, in writing to this Commission on or before ....., 19....., why said recommendations of said engineer or inspector as set out in said report should not be complied with, and said ..... was further notified therein that, unless good cause be shown to the contrary to this Commission by said ..... before said date, the requirements or recommendations of said engineer or inspector would be adopted as the safety requirements of the Industrial Accident Commission, relative to said place of employment with particular reference to the use of said equipment, and the use of said equipment would be prohibited, and

Whereas, said ..... has made no return or insufficient return to said notice and has not submitted sufficient reason or shown good cause why action should not be taken to prohibit the use and operation of said equipment until such requirements be complied with;

Now, therefore, the following special safety order is hereby made as the order of the In-

(Testimony of Stephen Davidson Bechtel.)

dustrial Accident Commission relative to said equipment confirming said inspection report and the requirements and recommendations therein contained.

It is hereby found and determined that the place of employment of said Joint Highway District No. 13, consisting of a tunnel, located at Oakland, California, is unsafe and dangerous to workmen employed therein and the following precautions must be taken to render the equipment reasonably safe for the use of employees;

1. All timbering in both the north and south tunnels shall not be removed and reset before concreting.

2. The concrete forms may be lowered sufficiently to clear encroachments in the tunnel section, or some other plan, whereby the timbering will not be disturbed, may be submitted to the Commission for approval.

It is further ordered that the use and operation of said equipment be and it is hereby prohibited until said conditions shall be rectified, as aforesaid;

And the Legal Department and/or any employee of the Commission are hereby authorized to attach notice of said prohibition to said equipment and to institute any civil or criminal

(Testimony of Stephen Davidson Bechtel.)

proceedings in the Courts which may be necessary to adequately enforce this order.

[Seal] T. A. REARDON
(Commissioner)
FRANK J. BURKE
Industrial Accident Commission
(Deputy Commissioner)

Dated at San Francisco, California, this 19th day of September, 1935.

[Endorsed]: Received Sept. 20, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. EEE. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: Gentlemen, I assume it may be stipulated that a like order was received by the Contractor?

Mr. Marrin: Yes. I was just going to ask you to stipulate the same thing, Mr. Tinning,—an order identical with this was received by the Six Companies of California about the 19th or 20th day of September; I am not sure of the date—with the exception it was addressed to Six Companies of California rather than the District.

Mr. Tinning: Yes.

Mr. Smith: Also, isn't the original of the order on a printed form? Was some of this language

(Testimony of Stephen Davidson Bechtel.)

in printed form and not specially directed—it is correct it is on a printed form, isn't it?

Mr. Tinning: Yes; and I have read a copy in full, in view of the admonitions that I have had from counsel previously.

Mr. Smith: Yes. There were so many blanks, it did not sound intelligible.

Mr. Tinning: And it is a fact that, prior to the issuance of that order, there was no hearing held by the Industrial Accident Commission; these blanks were not filled in for that reason.

Mr. Marrin: No hearing was held.

Mr. Tinning: I think it can also be stipulated that both the Contractor and the District ceased and desisted, and complied with the order at that time; that you did nothing further at that time in the way of work.

The defendant offers in evidence a letter dated September 25, 1935, addressed by the District Engineer, Wallace B. Boggs, to Six Companies of California; and ask it be marked defendant's exhibit in [1172] proper order.

(The letter was marked "Defendant's Exhibit FFF.")

Mr. Tinning: (Reading)

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT FFF

September 25, 1935

File: Broadway Tunnel
Gunite rings
Six Companies of California
Field Office
Post Office Box 120
Berkeley, California

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

With reference to your communication of September 17, 1935, in which you submitted a plan to use Gunite rings on portions of the tunnel construction, it is my understanding from conversations with you in the last few days that you wished this matter withdrawn from further consideration.

Kindly advise me if my understanding is correct in this respect.

Yours very truly,
(signed) WALLACE B. BOGGS
District Engineer

WBB/VE

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. FFF. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: The defendant offers in evidence a letter dated September 26, 1935, addressed by Six Companies of California to Wallace B. Boggs, District Engineer, and signed by T. M. Price, Project Manager; and ask it be marked.

(The letter was marked "Defendant's Exhibit GGG.")

Mr. Tinning: (Reading) [1173]

DEFENDANT'S EXHIBIT GGG

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office Post Office Box 120
Berkeley, California

September 26, 1935

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St., Oakland.

Dear Sir:

Acknowledging your letter of September 25, with reference to the proposed Gunite rings:

It is our desire to withdraw this matter from further consideration.

However, we are going to put in a few feet of this material in the grade tunnel, ahead of the upper forms and outside the concrete sec-

(Testimony of Stephen Davidson Bechtel.)

tion, for the purpose of blocking the timbers and making it safer to remove cross bracing.

Very truly yours,
SIX COMPANIES OF CALIFORNIA
By (signed) T. M. PRICE
Project Manager

P:C

[Endorsed]: Received Sept. 27, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. GGG. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Smith: Did the original of that letter show up?

Mr. Tinning: There is no word on it; I just checked it up before I left.

The defendant offers in evidence a letter dated September 27, 1935, addressed to Messrs. Thelen & Marrin, Attorneys at Law, Balfour Building, San Francisco, California, and signed by Archibald B. Tinning, Attorney; and ask that it be marked defendant's exhibit in proper order.

(The letter was marked "Defendant's Exhibit HHH.")

Mr. Tinning: (Reading) [1174]

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT HHH

September 27, 1935

Messrs. Thelen & Marrin
Attorneys at Law
Balfour Building
San Francisco, California
Attention Mr. Max Thelen

Dear Mr. Thelen:

This letter is written in accordance with my telephone conversation with you this afternoon, in which you requested me to put my inquiry in writing in order that you might discuss it with your clients, Six Companies of California, which contracted to construct the project of this District under the contract dated June 4, 1934.

Will the contractor and its bondsmen agree, if permission is granted by the District to install the permanent reinforced concrete tunnel lining in the portions of the tunnel bores which have been excavated but are not now lined with the permanent tunnel lining called for in the plans and specifications, to a section with an intrados crown position ten inches lower than the present designed crown position provided for in the plans and specifications, and with the position of the interior walls of the sides of the tunnel lining a maximum of six inches inside of the present designed position, and to all of the dimensions shown on the preliminary plat presented by the District Engineer to the

(Testimony of Stephen Davidson Bechtel.)

Industrial Accident Commission at its hearing on September 24, 1935, and to install proper transitions from the special sections of the permanent lining to the sections of the permanent lining built in accordance with the original design, and to make such alteration in the location of the ceilings, flues, hangers and other details of the completed structure as are determined necessary by the District Engineer to adjust the same to the special section, all without extra charge to the District, and at the price per lineal foot for completed tunnel provided in the contract of June 4, 1934, the District to pay for all reinforcing steel placed in the lining at the unit price provided for in the contract.

Your reply will be communicated to the Government Engineer, a request having been received by the District from the Government Engineer for this information for use in determining whether or not the Government Engineer will authorize the installation of the special section of permanent lining in accordance with the recommendation made by the District Engineer at the meeting of the Industrial Accident Commission on September 24, 1935.

Yours very truly,

(signed) ARCHIBALD B. TINNING
Attorney
924 Main Street
Martinez, California

ABT:EK

(Testimony of Stephen Davidson Bechtel.)

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. HHH. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: The defendant offers in evidence a letter dated September 30, 1935, addressed to the District Engineer by Edward J. Neron, Deputy Director of the Department of Public Works of the State of California.

Mr. Marrin: Just a moment, Mr. Tinning. I don't know about this letter. There will be no objection. You may proceed.

Mr. Tinning: And the defendant asks that the letter be marked defendant's exhibit in proper order. [1175]

(The letter was marked "Defendant's Exhibit III.")

Mr. Tinning: (Reading) [1176]

DEFENDANT'S EXHIBIT III

Frank F. Merriam
Governor of California
State of California

Earl Lee Kelly
Director
Department of Public Works
Sacramento

September 30, 1935

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
Of the State of California,
1448 Webster Street,
Oakland, California.

(Testimony of Stephen Davidson Bechtel.)

Dear Mr. Boggs:

Receipt of your letter of September 30th, requesting permission to install a special section in the portions of the Broadway Low Level Tunnels which have been excavated but are not now lined with permanent tunnel lining, with the crown position ten inches lower than provided for in the Plans and Specifications, and with the interior walls of the sides of the tunnel linings a maximum of six inches inside of the present designed position, and to all of the dimensions shown on the blue print accompanying said letter designated, "Joint Highway District No. 13, State of California, Alameda Co.-Contra Costa Co. Main Tunnel Special Section Type A", dated September 28th, 1935, is acknowledged.

After considering the same, you are hereby authorized to install the permanent reinforced concrete tunnel lining to the dimensions and in accordance with the design set forth on the blue print entitled, "Joint Highway District No. 13, State of California, Alameda Co.-Contra Costa Co. Main Tunnel Special Section Type A", dated September 28th, 1935. The installation of such lining is authorized only for those portions of the tunnel bores which have been excavated and are now open and supported by temporary timber supports, and all portions of the tunnel bores which have not been excavated

(Testimony of Stephen Davidson Bechtel.)

are to be lined with permanent tunnel lining to the dimensions provided for in the Plans and Specifications.

Yours very truly,
(signed) EDWARD J. NERON
Deputy Director.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. III. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: The defendant offers in evidence a letter from Messrs. Thelen & Marrin, signed by Max Thelen, addressed to Archibald B. Tinning, Attorney at Law; and, under the stipulation heretofore made, Thelen & Marrin are counsel for the plaintiff in this action and were at that time; and I was representing the District.

Mr. Marrin: Yes.

Mr. Tinning: And the defendant asks that the letter be designated defendant's exhibit next in order,—the letter being dated October 3, 1935.

(The letter was marked "Defendant's Exhibit JJJ.")

Mr. Tinning: (Reading) [1177]

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT JJJ

Max Thelen
Paul S. Marrin

Law Offices of
Thelen & Marrin
Balfour Building
San Francisco

October 3, 1935

Mr. Archibald B. Tinning,
Attorney at Law,
924 Main Street,
Martinez, California.

In re: Broadway Tunnels

Dear Mr. Tinning:

Referring to your letter of the 27th, ult. in the above entitled matter, please be advised that Six Companies of California will, without extra charge to the District by reason of the doing of the same, perform the acts listed in that portion of the second paragraph of your letter which precedes the words "all without extra charge to the District" and will act in accordance with the preliminary plat referred to by you or such modification thereof as may, from time to time, be agreed upon.

This commitment by the Company is not to be extended further than a commitment to perform these particular items without extra charge to the District.

(Testimony of Stephen Davidson Bechtel.)

The matter of the bondsmen we believe to be covered by Paragraph 14 of the Contract of June 4, 1934, between the District and Six Companies of California.

Very truly yours,
THELEN & MARRIN
By (signed) MAX THELEN

MT:MF

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. JJJ. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: The defendant now offers in evidence, if the Court please, a letter dated October 8, 1935, addressed to Wallace B. Boggs, District Engineer, signed by Six Companies of California, by S. D. Bechtel, President, and also by the Attorney in Fact, or some other properly authorized official of all of the 16 surety companies who were on the bond, on this contract; the letter being a request to grant permission.

(The letter was marked "Defendant's Exhibit KKK.")

Mr. Tinning: (Reading) [1178]

[Set forth in the Book of Exhibits at page 397.]

Mr. Tinning: The defendant offers in evidence a letter dated October 21, 1935, addressed to the District by C. H. Sweetser, District Engineer, United States Department of Agriculture, Bureau of Pub-

(Testimony of Stephen Davidson Bechtel.)

lic Roads, District No. 2; and ask that it be marked defendant's exhibit in proper order.

(The letter was marked "Defendant's Exhibit LLL.")

Mr. Tinning: (Reading) [1179]

DEFENDANT'S EXHIBIT LLL

United States Department of Agriculture
Bureau of Public Roads
District No. 2

In your reply please refer to
File No—Calif PWC 2231

Phone: Sutter 3861
461 Market St.
San Francisco, California
October 21, 1935

Mr. W. B. Boggs
District Engineer,
Joint Highway Dist. No. 13
1448 Webster Street
Oakland, California

Dear Mr. Boggs:

I have your letters of October 12 and 14, asking my approval of the use of a revised section of concrete lining as shown on drawing 187/S dated September 28, 1935; this section to be used in all portions of the tunnels which were excavated and not lined on September 30, 1935.

Since this change is necessitated by reason of the safety order issued by the State Industrial Accident Commission and since the con-

(Testimony of Stephen Davidson Bechtel.)

tractor and his sureties have agreed to the change "without additional cost to the District for additional labor and material required—" I am hereby giving my approval.

It is understood that in the portions of the tunnels yet to be excavated the original lining section of the contract will be adhered to.

Very truly yours,

(signed) C. H. SWEETSER
District Engineer

[Endorsed]: Received Oct. 22, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. LLL. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: To save putting a lot of extra matter in the record, I presume we can stipulate as to the Safety Order issued by the Industrial Accident Commission which authorized the drop section method to be worked out, and the date of the order was on or about the 24th of September—the hearing was held on the 24th of September, 1935.

Mr. Marrin: I think those orders of the Commission should all go in evidence. It is our intention to offer them if you do not want to offer them.

Mr. Wittschen: If you have them, you can put them in now or afterwards.

Mr. Marrin: We have them, and intend to put

(Testimony of Stephen Davidson Bechtel.)

them in, through Mr. Price, as we did a number of these other matters.

Mr. Tinning: I think we have them here. I may have overlooked it, but it occurred to me as we went along that possibly we might stipulate to it.

We will offer in evidence a letter from Wallace B. Boggs, addressed to Six Companies of California, dated November 8, 1935; and ask it be marked Defendant's Exhibit MMM.

(The letter was marked "Defendant's Exhibit MMM.")

Mr. Tinning: (Reading) [1180]

DEFENDANT'S EXHIBIT MMM

November 8, 1935

File: Broadway Tunnel
Six Companies of California, Inc.,
Field Office,
Post Office Box 120,
Berkeley, California.

Gentlemen:

The installation of the permanent reinforced concrete tunnel lining in the portions of the Broadway Low Level Tunnels which were excavated but not lined with such permanent lining on the 30th day of September, 1935, with an intrados crown position ten inches lower than the crown position called for in the plans and specifications and with the position of the interior walls of the sides of the tunnel lining a maximum of six inches inside of the position

(Testimony of Stephen Davidson Bechtel.)

provided for in the plans and specifications, and to all of the dimensions shown on Sheet 187-S of the plan, entitled "Main Tunnel Special Section Type A—Date September 28, 1935, Joint Highway District No. 13, State of California", the contractor to install proper transitions from the special sections of the permanent lining to the sections of the permanent lining built in accordance with the original design, and to make such alterations in the location of the ceilings, flues, hangers and other details of the completed structure as are determined to be necessary by the District Engineer to adjust the same to the special section, all without additional cost to the District for additional labor or materials required to change the form and position of the section, all as requested by you in your letter of October 8, 1935, addressed to me, is hereby authorized.

Yours very truly,
(signed) WALLACE B. BOGGS
District Engineer

WBB:MC

[Endorsed]: U. S. Dist Ct. N. D. Cal. No. 20101-R. Deft's Ex. MMM. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: The defendant offers in evidence a letter dated November 20, 1935, addressed by Six Companies of California, signed by S. D. Bechtel, President, to Wallace B. Boggs, District Engineer; and ask that it be marked "Defendant's Exhibit NNN."

(The letter was marked "Defendant's Exhibit NNN.")

Mr. Tinning: (Reading:) [1181]

DEFENDANT'S EXHIBIT NNN

Builders of Low Level Broadway Tunnel
Six Companies of California
155 Sansome Street
San Francisco, Calif.

November 20, 1935

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
Of the State of California,
1448 Webster Street,
Oakland, California.

Dear Mr. Boggs:

Confirming our discussion of yesterday, please address correspondence relative to Broadway Tunnel construction to:

Six Companies of California,
P. O. Box 120,
Berkeley, California,

with copies to this office.

V. G. Hindmarsh, General Superintendent, will be a proper party with whom to discuss

(Testimony of Stephen Davidson Bechtel.)

and handle matters pertaining to construction work.

Yours very truly,
SIX COMPANIES OF CALIFORNIA
By (signed) S. D. BECHTEL
President

SDB:DP

[Endorsed]: Received Nov. 21, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. NNN. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: Q. It is a fact, is it not, Mr. Bechtel, that Mr. Hindmarsh became the General Superintendent of the tunnel work on or about the date of this letter?

A. No; he had become General Superintendent approximately at September 5, 1935.

Q. Some time in 1934, you notified the District that Mr. Price was Project Manager, and to communicate with him; and then, as a matter of fact, on or about the 5th of September, after the slide, Mr. Hindmarsh took charge and you gave us this notice about the 20th of November? A. Yes.

Q. Mr. Price was no longer in charge of the tunnel after September 5th?

A. Mr. Price continued as Project Manager.

Q. And Mr. Hindmarsh?

(Testimony of Stephen Davidson Bechtel.)

A. He took the responsibility pertaining to tunnel construction.

Q. Did he report to Mr. Price?

A. He collaborated with Mr. Price; worked with him.

Mr. Tinning: The defendant offers in evidence a letter from Six Companies of California, signed by Mr. V. G. Hindmarsh, addressed to Wallace Boggs, District Engineer, as Defendant's Exhibit "OOO."

(The letter was marked "Defendant's Exhibit OOO.")

Mr. Tinning: (Reading:) [1182]

DEFENDANT'S EXHIBIT OOO

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office Post Office Box 120
Berkeley, California
December 20, 1935

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland.

Dear Sir:

Since we have resumed excavating in the south tunnel, we have not been furnished lines and grades to work to by your engineering staff, and have been compelled to do this ourselves.

(Testimony of Stephen Davidson Bechtel.)

It is our understanding of the specifications, that you are obligated to furnish lines and grades to us, and we do not feel that we should be put in the position of doing this work, and assuming the responsibility involved in same. We have been doing it thus far, in order not to interfere with progress of the work, but we respectfully urge that you immediately arrange to give us the necessary lines and grades.

We shall be compelled to hold you responsible for the cost of our doing this work, and also for any results of same in the event that damage or loss occurs as a result of doing it, for the reason that it is your responsibility under the Specifications.

Very truly yours,
SIX COMPANIES OF CALIFORNIA,
By (signed) V. C. HINDMARSH,

[Endorsed]: Received December 21, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. OOO. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: Q. Mr. Bechtel, it is a fact that, after that letter was written, the District refused to furnish anything other than the engineering that had been furnished before that?

(Testimony of Stephen Davidson Bechtel.)

A. It did not, at that time, furnish us the lines and the grades.

Q. Anything additional to what had been furnished before? A. No.

Q. And that matter remained in the same status that it was,—a reiteration of your former request and the position of the District remained the same?

A. It continued a point of controversy.

Mr. Tinning: The defendant offers in evidence a letter dated December 28, 1935, addressed by Wallace B. Boggs, District Engineer, to Six Companies of California; and ask that it be marked as [1183] Defendant's Exhibit PPP. It reads:

DEFENDANT'S EXHIBIT PPP

December 28, 1935

File: Broadway Tunnel
Lines and Grades
Six Companies of California,
P. O. Box 120,
Berkeley, California.

Gentlemen:

Receipt of your letter of December 20, 1935, in which you state that you are not being furnished lines and grades in accordance with the specifications, is hereby acknowledged. The contention set forth in the above mentioned communication appears to be the same that has been made by you at a former time and has

(Testimony of Stephen Davidson Bechtel.)

been fully covered in previous communications to you.

The District has fully met its obligations under the specifications in this respect and will continue to do so; therefore, the District is in nowise responsible for any costs of your engineering or for the results of your work.

Yours very truly,
(signed) WALLACE B. BOGGS
District Engineer

WBB:VE

CC to Six Companies of California, 155 Sansome St., S. F.

CC to Mr. Archibald B. Tinning, Attorney

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. PPP. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit PPP.")

In the chronology of these documents there have been certain documents already introduced that follow along. Plaintiff's Exhibit No. 50, a letter dated February 25, 1936, addressed to Mr. Caldecott, by Six Companies of California, relates to arbitration, and was introduced last Friday.

(Testimony of Stephen Davidson Bechtel.)

Plaintiff's Exhibit No. 51, a letter dated February 28, 1936, in which Mr. Caldecott replied to the Six Companies' letter of February 25, has already been introduced and likewise under Plaintiff's Exhibit 52 Mr. Kaiser's letter as President of Six Companies, dated February 29, 1936, referring to the arbitration matter, was introduced in evidence.

Following the letter of February 29, 1936 the next communication that we wish to offer is a letter from Six Companies of California [1184] signed by Henry J. Kaiser, President, dated April 20, 1936, addressed to the Board of Directors of the District, and we ask that it be marked in evidence as Defendant's Exhibit QQQ. It reads:

DEFENDANT'S EXHIBIT QQQ

Builders of Low Level Broadway Tunnel
Six Companies of California
Field Office—P. O. Box 120
Berkeley, California
April 20, 1936

Board of Directors,
Joint Highway District No. 13,
State of California,
1448 Webster Street,
Oakland, California.

Gentlemen:

This will serve as formal notice that by proceeding with the construction of the Broadway

(Testimony of Stephen Davidson Bechtel.)

Low Level Tunnels, the undersigned, Six Companies of California, does not waive, in any manner, the rights and claims which it has heretofore asserted and does now assert against your District.

The undersigned does, on the contrary, reaffirm and reassert all of its claims as heretofore stated to you in writing, including particularly the statement thereof contained in the letter dated August 28th, 1935, from us to you, and will continue to assert each and all of said claims and any others which may have since been made, either in writing or otherwise, until the same are fully satisfied.

Yours very truly,

SIX COMPANIES OF CALIFORNIA

By (signed) HENRY J. KAISER

President

Henry J. Kaiser/W

[Endorsed]: Received April 21, 1936. J. H. D. #13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. QQQ. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit QQQ.")

(Testimony of Stephen Davidson Bechtel.)

Defendant offers in evidence a letter addressed by the Joint Highway District, signed by Thomas E. Caldecott, President, to Six Companies of California, dated April 30, 1936, and ask that it be received in evidence as Defendant's Exhibit RRR. It reads: [1185]

DEFENDANT'S EXHIBIT RRR

April 30, 1936

File: Broadway Tunnel
Six Companies of California,
P. O. Box 120,
Berkeley, California.

Gentlemen:

Your letter dated April 20th, 1936, has been received.

You were advised by this Board in its reply to your letter of August 28th, 1935, and at various conferences of the Board and your representatives, which have occurred since that date, that all of the claims and contentions asserted by you in that letter were without merit, and that you were obligated to complete the work you contracted to perform under the contract dated June 4, 1934, in accordance with all of its terms.

The position of the District is now reiterated in this reply to your letter of April 20th, 1936, and you are advised that the District considers

(Testimony of Stephen Davidson Bechtel.)

that all of the claims made by you are without validity or merit, and that you are bound by your contract with the District to complete the work undertaken by you in accordance with the terms of the contract.

Yours very truly,
JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA.
(signed) THOMAS E. CALDECOTT
President

TEC/VE

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. RRR. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit RRR.")

The defendant now offers in evidence a letter dated May 8, 1936, signed by Six Companies of California, by Henry J. Kaiser, President, addressed to the Board of Directors of Joint Highway District No. 13, of the State of California, and ask that it be marked as Defendant's Exhibit SSS. It reads: [1186]

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT SSS

Six Companies of California
Latham Square Building
Oakland, California

May 8th, 1936

To the Board of Directors, Joint Highway District #13 of the State of California,
1448 Webster Street,
Oakland, California.

Dear Sirs:

Pursuant to the provisions of Subsection (c) of Section IV of the Specifications for the construction of the Broadway Low Level Tunnel, said Section IV having to do with the subject of "Time", we hereby make written application for an extension of time for completion of the work covered by the contract in the amount of six hundred (600) days.

Such application is based upon the provisions of said Subsection (c) of Section IV and upon the grounds that the work has been delayed by acts of God, stormy and inclement weather, and other reasons beyond our control, which have delayed the work.

The other reasons above referred to may be made the subject of a detailed statement thereof to be submitted by us at a later date.

The making of this application is not to be deemed a waiver of any of the claims previously asserted by us and particularly as set

(Testimony of Stephen Davidson Bechtel.)

forth in our recent letter of April 20th, 1936 addressed to you.

Very truly yours,

SIX COMPANIES OF CALIFORNIA

By (signed) HENRY J. KAISER

President

[Endorsed]: Received 11.45 A. M. May 11, 1936. Joint Highway District No. 13. By L. V. Eaton (signed) Assistant Secretary.

[Endorsed]: U. S. Dist Ct. N. D. Cal. No. 20101-R. Deft's Ex. SSS. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit SSS.")

Mr. Tinning: The defendant offers in evidence a letter addressed by Harry M. Stow, Secretary, to Six Companies of California, dated May 14, 1936; and ask it be marked "Defendant's Exhibit TTT." It reads: [1187]

DEFENDANT'S EXHIBIT TTT

May 14, 1936

Six Companies of California
Latham Square Building
Oakland, California

Attention of Henry J. Kaiser, President

Gentlemen:

At a meeting held on May 14, 1936, your letter dated May 8, 1936, applying for a six hun-

(Testimony of Stephen Davidson Bechtel.)

dred day extension of time for completion of the work to be performed under your contract with this District, dated June 4, 1934, was denied by the Board of Directors of this District on the grounds that the contractor has not been delayed in the prosecution of the work to be performed under its contract by acts of God or stormy or inclement weather, or by any reason, which in the judgment of the District Engineer has unavoidably delayed the work, or by any other reason or reasons beyond the control of the contractor which have delayed the work.

Yours very truly,
(signed) HARRY M. STOW
Secretary

HMS:HR

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. TTT. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit TTT.")

Mr. Tinning: If your Honor please, we propose next to introduce—and which we will ask the Court to accept—23 estimates, engineers' estimates, upon which payments were made from the commencement of the contract up to the payment in May of 1936.

(Testimony of Stephen Davidson Bechtel.)

The Court: Is that the payment from month to month?

Mr. Tinning: Payments made from month to month; and then, after that, we will introduce estimates that were brought up to June 13th; and then the estimate number 25, which was submitted in July; there are 25 of those altogether, and I know I cannot finish it—I do not propose to read you them all—I may be able to finish them by 4:15 or 4:20——

The Court: If there is no question about that, if you want a record on it, cannot it be stipulated that they may be introduced without going through the form?

Mr. Tinning: I think we could put them in, but the work in that is rather considerable. I would prefer to do that in the morning, if we could. We are almost through.

Mr. Wittschen: I suggest that they do go in and not be copied. They are in much better form than if copied in the record, and they might go in by stipulation.

Mr. Marrin: I think we have copies of all of those. I suggest that they be deemed read. I do not know what they have to do with the cross-examination of this witness. In fact, I think most of this stuff has gone in out of order; but we have made no objection. [1188]

Mr. Tinning: We have our theory of this matter.

(Testimony of Stephen Davidson Bechtel.)

Mr. Marrin: It has gone so far; we are not objecting, but most of this is not cross-examination of the witness. However, as far as these estimates are concerned, you may introduce them and they may be deemed read, to save time, subject to our right to check them.

Mr. Tinning: They are photostats of the originals, so that they will not require much checking.

Mr. Wittschen: And they need not be copied.

Mr. Marrin: We will stipulate they need not be copied in the record, and deemed read; just put them in.

The Court: Either side can use them for any purpose they wish. Make your offer for the purpose of the record and to protect the record.

Mr. Tinning: Your Honor, there are 25 of these; and I think, in conformity with the agreement counsel has been good enough to make, I can set up the necessary copies. I think it is going to take me 10 minutes to divide them up and put them in; and we can do that in the morning.

The Court: Very well. We will take an adjournment now until tomorrow morning at ten o'clock.

(Thereupon, an adjournment was taken until Thursday, April 28, 1938, at 10 o'clock a. m.)

[1189]

THURSDAY, APRIL 28, 1938

STEPHEN DAVIDSON BECHTEL,

Cross Examination (Resumed).

Mr. Tinning: Q. Mr. Bechtel, were you present at a hearing before the Industrial Accident Commission of the State of California on September 24, 1935, at 2 o'clock p. m. in the State Building, San Francisco, when the matter of a safety order affecting the Broadway Low Level Tunnel was under consideration by the Industrial Accident Commission of the State of California?

A. I do not recall the date, but I attended such a meeting.

Q. Some time after the accident of August 28, 1935, and in connection with the modified section matter, in which for the progress of the work there had been an order made on the 19th of September prohibiting the resetting of timbers? A. Yes.

Q. And at that meeting do you recollect that Mr. Reardon was present, presiding as chairman, Frank C. MacDonald, one of the Commissioners of the Industrial Accident Commission, was also present, Frank J. Burke, Secretary of the Industrial Accident Commission, Mr. F. L. Lowell, Industrial Accident Commission, one of the Industrial Accident Commission safety inspectors or engineers, and Mr. L. K. Reinhardt, who also held a like position with the Commission, Mr. J. I. Ballard, Editor of the Western Construction News, Jack Norton, of the Oakland Tribune, O. W. Peterson, Six Companies of California, Thomas Soule, Chief Engineer, Industrial Indemnity Exchange, S. M. Jar-

(Testimony of Stephen Davidson Bechtel.)

rett, Safety Engineer, Industrial Indemnity Exchange—the Industrial Indemnity Exchange was your compensation insurance carrier on this job, was it not? A. Yes.

Q. J. Q. Barlow, one of the members of the Utah Construction Company, a constituent of Six Companies——

A. (Interrupting) He was one of their engineers. [1190]

Q. V. G. Hindmarsh, of Six Companies, T. M. Price, of Six Companies, George D. Whittle, United States Bureau of Public Roads, F. Modglin, the President, or he was connected with one of your constituent companies, was he not?

A. General Manager of McDonald & Kahn Company, Limited.

Q. Yourself, President of Six Companies, T. L. Phillips, who was one of your consulting engineers mentioned yesterday in connection with Mr. Tibbitts, Mr. D. Young, of MacDonald & Kahn, Mason D. Pratt, engineer for the Surety Companies on the bond, Max Thelen, attorney for Six Companies, DeLancy Smith, attorney for Six Companies, myself, attorney for Highway District No. 13, and Mr. Boggs, the engineer of Highway District No. 13. Do you remember that those persons were present at that time?

A. I do not recall each one of them, but, in general, you are correct.

(Testimony of Stephen Davidson Bechtel.)

Q. And at that time there was an official reporter present? A. I presume there was.

Q. There was a reporter there, and have you seen a transcript of the testimony?

A. I don't recall that I have or not, Mr. Tinning

Q. I will show you a copy of it. This is a copy, Mr. Bechtel, that I am showing you, and I am going to direct your attention to some matters on page 7. At that time and place were these questions or statements made to the Commission, commencing at the top of page 7:

"Mr. Tinning: I am not asking that anything be conceded. We only want our definite statement as to our position, as an excess of precaution. We waive nothing in connection with this plan. We are simply trying to state our position, not trying to put it to the side.

"Mr. Thelen: I may suggest that if references of that kind are made, we may have to introduce evidence to show that the references are not justified. We do not admit there has been any delay. [1191]

"Mr. MacDonald: I hardly think we will rule on the statement, but we will recognize and are compelled to recognize Mr. Thelen's right to file with this Commission any supplemental statement he may desire, setting forth the position of his clients.

"Mr. Thelen: I think that is very very fair."

(Testimony of Stephen Davidson Bechtel.)

Now, if you will turn to page 6, line 13:

"Mr. Boggs. (Reading):

"'The recommendation for a modification of the plan for the Broadway Low Level Tunnel which follows, is made solely because of the delay of the contractor in placing the permanent reinforced concrete tunnel lining in the portions of the tunnel bores which have been excavated, but not lined with the permanent lining called for in the plans and specifications.'"

I will return now to the remainder of Mr. Boggs' testimony on page 7:

"'These open sections of the tunnel bores are supported by temporary timber supports which have been generally intruded into the space necessary for placing the permanent tunnel lining in accordance with the Plans and Specifications. If the permanent lining had been installed promptly after excavation the present condition of the timbers would not exist.

"'To eliminate so far as practical the demonstrated hazard to the lives and safety of workmen arising from resetting the temporary timber supports, and, at the same time to provide a structure equal in strength and capacity to the original design, a modified design is recommended.

"'In making this recommendation, or in its later authorization, it is not intended in any

(Testimony of Stephen Davidson Bechtel.)

respect to admit the modification is made because of any demand, claim, or contention of the Contractor which has heretofore been communicated to the Joint Highway District No. 13 of the State of California, or to any of its officers [1192] or employees, and the District if the modification is authorized, waives none of its rights under the contract dated June 4th, 1934, with the Six Companies of California.

" 'The District Engineer recommends as a design for the permanent reinforced concrete tunnel lining for those portions of both bores of the Broadway Lower Level Tunnel, which are now excavated and supported by temporary support, and in which the permanent tunnel lining has not yet been placed, a section with an intrados crown position 10 inches lower than the present designed crown position, the position of the sides of the tunnel lining 6 inches inside of the present designed position, and to all of the dimensions shown on the preliminary plat of Joint Highway District No. 13 of the State of California, entitled, "Modification Type A Section—Sept. 21, 1935."

" 'This recommendation is that said modification in dimensions of the permanent reinforced concrete tunnel lining be authorized by the District, under all of the terms of the Contract, plans and specifications, for the sections of tunnels now open and unlined, the Contrac-

(Testimony of Stephen Davidson Bechtel.)

tor to be paid therefor at the price per lineal foot as provided in the contract of June 4, 1934 (extra concrete necessary to fill the space left by the contraction of the dimensions of the tunnel lining, to be furnished by the Contractor at its own cost), all reinforcing steel required in the construction of the modified section, to be paid for by the District at the unit price provided in the contract of June 4, 1934; the proposed modification of the tunnel lining will not apply to the portions of the tunnel bores which are already lined, nor to any portions which are not now fully excavated and supported by temporary timbering supports; and the Contractor will be required to excavate, and to install the permanent reinforced concrete tunnel lining in all [1193] parts of the bores not yet fully excavated, to the dimensions specified in the original plans and specifications, and to install proper transitions from the modified sections to the sections of lining built to the original design, and to make such alteration in location of the ceilings, flues, hangers and other details of the complete structure are determined necessary by the District Engineer to adjust such portions to the modified sections, all without any extra charge to the District, and at the prices provided in the contract of June 4, 1934.

"Before the above recommendation is finally approved by the Board of Directors of the Joint Highway District No. 13, it is sub-

(Testimony of Stephen Davidson Bechtel.)

ject to the approval by the Director of the Department of Public Works of the State of California, and the proper officials of the Bureau of Public Roads, and/or the P. W. A. of the United States, after which the Board of Directors of the Joint Highway No. 13, will act upon the recommendation for the modification.' "

Now, Mr. Bechtel, do you remember that at that hearing I have referred to that the statements which I have just read to you were made by Mr. Boggs?

A. I have a general recollection to that effect.

Q. They were substantially as appears here in this record? A. Yes.

Mr. Tinning: Do you desire this offered in evidence, this transcript?

Mr. Marrin: I think it should all go in.

Mr. Tinning: If your Honor please, we offer in evidence this transcript of the hearing, as Defendant's Exhibit UUU.

(The transcript was marked "Defendant's Exhibit UUU.")

[Set forth in the Book of Exhibits at page 403.]

Q. Subsequently, and after that hearing, on that day, Mr. Bechtel, the Industrial Accident Commission made a safety order which pro- [1194] vided that no timber in either the north or south tunnel should be removed or re-set before concreting, and except in such special instances and under such

(Testimony of Stephen Davidson Bechtel.)

conditions as the representatives of the Industrial Accident Commission or the Commission might authorize. That is true, is it not?

A. That is substantially correct.

Q. It is true, is it not? It is more than "substantially correct."

A. The words you used may not be exactly verbatim of what they provided, that is what I am referring to. I do not remember the exact words.

Q. I understand.

Mr. Tinning: If your Honor please, the defendant offers in evidence the Industrial Accident Commission Special Safety Order, requiring remedying of unsafe condition of place of employment, dated September 24, 1935, addressed to Mr. Wallace B. Boggs, District Engineer, signed by T. A. Reardon, Commissioner, and Frank C. MacDonald, Commissioner, bearing the seal of the Commission, as Defendant's Exhibit VVV.

(The document was marked "Defendant's Exhibit VVV.")

Mr. Marrin, never having had an opportunity to see a copy of the order that went to you, after what was said yesterday, I understand that you received an order in the same form addressed to the Six Companies?

Mr. Marrin: Yes, that is my understanding, it was an order in the same form.

Mr. Tinning: And at the same time?

Mr. Marrin: Yes.

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: We have already introduced in evidence and wish to read Defendant's Exhibit VVV. Industrial Accident Commission Special Safety Order Requiring Remedying of Unsafe Condition Of Place Of Employment. September 24, 1935.

[1195]

DEFENDANT'S EXHIBIT VVV.

Frank J. Burke, Secretary
T. A. Reardon, Chairman
Meredith P. Snyder
Frank C. MacDonald
Members

State of California
Department of Industrial Relations
Industrial Accident Commission
State Building
San Francisco

SPECIAL SAFETY ORDER REQUIRING REMEDYING OF UNSAFE CONDITION OF PLACE OF EMPLOYMENT.

September 24, 1935

To: Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St.,
Oakland, California

Whereas, it appears from the report of inspection, dated September 19, 1935, of operations, located at Broadway Tunnel, Oakland, a place of employment, made by L. K. Reinhardt, that a dangerous condition exists in said

(Testimony of Stephen Davidson Bechtel.)

place of employment, to wit: Maintenance and construction in violation of the safety orders issued by the Industrial Accident Commission of the State of California, and that Joint Highway District No. 13, is the owner or person having the custody, management, or operation of said equipment; and

Whereas, this Commission did on the 23rd day of September, 1935, serve notice on the said Wallace B. Boggs directing him to show cause, if any he had to this Commission, on or before September 24, 1935, why said recommendation of said Engineer or Inspector as set out in said report should not be complied with, and

Whereas, this Commission did, on the 24th day of September, 1935, at a hearing held in its offices in the State Building in the City and County of San Francisco, State of California, find that the requirements or recommendations of the said Engineer should be adopted as the safety requirements of the Industrial Accident Commission relative to the said place of employment,

Now, Therefore, the following special safety order is hereby made as the order of the Industrial Accident Commission relative to said place of employment confirming said inspection report and the requirements and recommendations therein contained.

It is hereby found and determined that the place of employment of said Joint Highway

(Testimony of Stephen Davidson Bechtel.)

District No. 13, consisting of a tunnel, located at Oakland, California, is unsafe and dangerous to workmen employed therein and the following precautions must be taken to render the equipment reasonably safe for the use of employees:

1. No timbering in either the north or south tunnels shall be removed or reset before concreting, except in such special instances and under such conditions as the representative of the Industrial Accident Commission or the Commission may authorize.

And the Legal Department and/or any employee of the Commission are hereby authorized to attach notice of said prohibition to said equipment and to institute any civil or criminal proceedings in the Courts which may be necessary to adequately enforce this order.

[Seal] (Signed) T. A. REARDON
Commissioner
(Signed) FRANK C. MacDONALD
Commissioner

Dated at San Francisco, California, this 24th day of September, 1935.

[Endorsed]: Received Sept. 25, 1935. Joint Highway Dist. No. 13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. VVV. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(Testimony of Stephen Davidson Bechtel.)

Gentlemen, will it be stipulated in connection with this order that both parties to the hearing received notice in advance of the hearing of the order to show cause and that both sides were represented at the hearing?

Mr. Marrin: It is so stipulated.

Mr. Tinning: Q. Mr. Bechtel, do you remember appearing at a meeting of the Board of Directors of Joint Highway District No. 13 on the 5th day of October, 1935, at which time, among other things, a request was presented to the Board to permit employment of men during the emergency following the accident 48 hours a week?

A. I remember attending one of your Board meetings in collaboration with or in company with others of our company.

Q. I am going to give you the names—at which time, accompanying you, was an employee of Six Companies, Mr. Waste, and Mr. Otto Peterson, one of the consulting engineers? A. Yes.

Q. And at which time the directors of the District, Henry L. Hinman, Harry M. Stow, and Thomas E. Caldecott were present and in session as the Board of Directors of the District, William B. Boggs, District Engineer, and Mr. C. H. Sweetser, District Engineer of the [1197] United States Bureau of Public Roads in San Francisco, and myself, were present? A. I believe so.

Q. And at that time, Mr. Bechtel, did you make a statement in substance and effect as follows to

(Testimony of Stephen Davidson Bechtel.)

the Board of Directors, that you felt that the contractor was under no legal obligation to continue to perform its contract, but that due to the fact that a number of the persons who owned interests in the Six Companies of California lived in the Bay Region, that there was a moral obligation on the part of the contractor to do the work, although the contractor had been advised by its attorneys that due to lack of knowledge of the conditions found in the excavation, which were worse than had been anticipated, that the plans and specifications and geological report constituted constructive fraud. Do you remember making that statement, in substance and effect?

A. In substance and effect. I do not remember the words "constructive fraud," but that might have been—I don't remember those words; the other part of it I do remember in substance.

Q. And that by reason of the situation the contractor would be permitted legally to withdraw from the work and recover 100 per cent. of the cost of the work performed; that the contractor intended to proceed with the work, and that large claims, running into a million or two million dollars would be pressed by the contractor against the district?

A. I think so.

Q. Did you then and at that time further state, in substance and effect, that you considered it was the duty of the District to redesign the tunnel lining to meet the conditions which you claimed were unanticipated? A. I think so.

(Testimony of Stephen Davidson Bechtel.)

Q. And were you advised then and there at that time that the district had given consideration to the claims with respect to the design and that it had heretofore advised you it was satisfied, and had advised you that the plans were proper and that the plans [1198] and specifications were clear, and that it was considered the duty of the contractor to proceed in accordance with the contract?

A. Yes, and in explanation of that, or I believe it is interesting to note that we had been held in an ante-room for some 30 or 45 minutes while you and your board met, and apparently reviewed prior to our discussion the entire matter; when we were ushered in you substantially did all the talking; nothing of any significance at all was said by any members of the Board of Directors, and this statement just made was made by you in speaking apparently for the Board. I think that is correct.

Q. But what I have asked you——

A. I answered yes, Mr. Tinning.

Q. And it is true that at that time, Mr. Bechtel, the District, and shortly following the time that you brought the consultants upon the work, had had consulting engineers? A. Yes.

Q. And you knew that they had been in conference with the people you had brought there, and on the second of September, by the letter from the District to Six Companies your contention specified in the letters of August 23 and August 28, with respect to the design, had been replied to, and you

(Testimony of Stephen Davidson Bechtel.)

had been told the District was satisfied that the design was correct, and that you should proceed under your contract? A. Yes.

Q. And you were again bringing this up on October 5? A. Yes.

Q. And during that time you had been proceeding, the Six Companies had been proceeding with the work in the tunnel? At this particular time you were not driving, you were making safe the conditions inside of the tunnel in the sense of placing additional timbers, I think it was called a safety set, or bracing to hold the timbers; you were also working vigorously on removing the place where the slide had occurred, wedging up the ground by the placing of timbers, and proceeding with all of that work during the month of September and on to October, until it was completed?

A. We proceeded to [1199] remove the caved-in section and concreted same; we also proceeded to do other work that was necessary to save the remainder of the tunnel.

Q. Which included placing concrete under the modified section, which also included the placing of concrete where the timbers had not intruded materially, or could be trimmed so that you could place the standard section without resetting timbers, and proceeded to patch up the concrete as far as possible?

A. Well, I do not think the modified section had been formally approved at that time, and it was

(Testimony of Stephen Davidson Bechtel.)

poured as rapidly and as expeditiously and as practically as possible.

Q. I am referring to the modified section, of course, after you had authority to go forward. Before that time any concrete that was placed in the tunnel was placed in accordance with the standard A section design?

Mr. Marrin: I do not think that statement is correct. It was not formally approved until November 8th, by Wallace Boggs. You are speaking about October 5th.

Mr. Tinning: I am talking about approval and I think the fact is that immediately following, or on October 2nd, that Mr. Sweetser authorized the work to go ahead under the modified section, subject to formal approval from Washington, which was received later, and our records show that the modified section commenced immediately following that date.

Mr. Marrin: The company proceeded to place the modified section immediately following the order of the Industrial Accident Commission; at this time it was not issued; it gave no formal approval until November 8, 1935.

Mr. Tinning: We will go into that later. We will prove that the approval was given and they were authorized by Mr. Sweetser to proceed at a meeting at his office, which I think was held on [1200] October 2 or 3.

Q. At any rate, you went ahead and the modi-

(Testimony of Stephen Davidson Bechtel.)

fied section was being placed about that time, and following the order of the Commission. If your Honor please, I offer in evidence regulations of P. W. A. Administrative Order 54, No. P. W. 40444, Federal Emergency Administration of Public Works, August 29, 1935, together with a letter from Thomas H. MacDonald, Chief of Bureau of Public Roads, at Washington, D. C., dated February 4, 1936, Memorandum to all District Engineers, and a letter dated March 4, 1936, from Mr. C. H. Sweetser, District Engineer, to Wallace B. Boggs, District Engineer, Joint Highway District No. 13 of the State of California, and ask that it be admitted in evidence as Defendant's Exhibit in proper order.

Mr. Marrin: If your Honor please, we object to the admission in evidence of this document. This appears to be a letter attaching a general circular with reference to liquidated damages, which was issued by the P. W. A. I want to point out to the Court that there is not a word in the contract between the plaintiff and the defendant here, respecting any authority of the P. W. A. over the granting of extensions of time or the imposition of liquidated damages. There is nothing in the contract that states that the District must secure the consent of the P. W. A. or the State of California, or any other body in order to grant an extension of time. This is a letter which was written nearly two years after the contract was entered into. And if

(Testimony of Stephen Davidson Bechtel.)

it is the contention of the defendant in this case that this is in any way binding on the plaintiff we object to its admission most strenuously on the ground that it is immaterial, irrelevant, and incompetent, and an attempt to alter and vary the terms of a written contract by a communication between this defendant and a third person. [1201]

Mr. Alexander: The surety companies make the same objection.

Mr. Wittschen: Counsel is mistaken when he says that there is nothing in the agreement between the parties that touches upon this. They expressly agreed, and I will read the section, to be bound by any orders that were promulgated by the P. W. A. We are not so much interested in the letter which accompanied it; that is a mere detail. We are interested in the ruling that was made by the P. W. A. authorities. The first thing that I want to call your Honor's attention to is the language of the agreement, itself, and if your Honor will bear with me a moment I will connect that up with the testimony of the witness. The District sent out a set of plans and specifications before this P. W. A. grant was allowed. As soon as that grant was allowed there was set up a supplemental set of specifications which supplemented the previous set. On these the plaintiff bid. The plaintiff has put in evidence as Plaintiff's Exhibit 7 the supplemental plans and specifications. This witness has testified repeatedly in connection with the limitation of plans and mak-

(Testimony of Stephen Davidson Bechtel.)

ing changes as to working conditions that he knew that the P. W. A. authority had to be obtained. If you will recall this witness' testimony of yesterday he said that he sought Mr. Boggs' aid in order to get Mr. Boggs to alleviate a restriction that you could only work 30 hours in one week. The witness also testified that the District stated it would try to get it lifted, and it made application for elimination of the provision that you could not work on Sundays and holidays, and all through this witness' testimony he has recognized that the P. W. A. was interested to the extent of one million dollars or more on this job. To say that is not binding is ridiculous, in view of their own agreement, which I am going to read now from page 4 of the supplemental specification, which states, in so far as material, "A grant of 30 per cent. of the cost of labor and materials used in the pro- [1262] ject of the District has been made by the Public Works Administration of the United States under the terms of said National Industrial Recovery Act, and all bidders are hereby advised that the Directors of the District will cooperate with the Public Works Administration and all its officers and employees in the enforcement of all of the provisions of said National Industrial Recovery Act, and rules and regulations heretofore and hereafter promulgated applicable to the performance of the work on the project of the District."

(Testimony of Stephen Davidson Bechtel.)

Now, in August, 1935, not two years after, but fourteen months after the contract was made, and when this contract had still ten months to run they promulgated a formal order, which I won't read, but which I will summarize to the effect that if the contract was not finished on time and the parties to whom the grant was made did not exact or waived the penalty clause because of failure to complete the contract on time, they did it in effect at their risk, because if the Government did not thereafter approve of this extension that then the amount so waived would be deducted from the amount that the Government otherwise would give to the party under the grant, or to state the matter in a different way, if the District did not exact this penalty when the penalty became due, then the Government, if it saw fit, could reduce the amount of grant by the amount of penalties waived. That is an order made by a body that was part of the work, where there were supplemental specifications specially made applicable to the subject, it was a ruling by the Federal authorities, and it was just as much binding on the contractor as it was binding on us. It is certainly legitimate evidence in view of this witness' testimony that he understood that these things could only be waived by the Government, and your Honor will recall further that the State [1203] gave them a 48-hour week but the Government insisted on a 40-hour week, so they had to take a 40-hour week. The Government had

(Testimony of Stephen Davidson Bechtel.)

control of the hours, and if they had control as to the hours they certainly had control as to whether or not a provision in the contract could be waived. Your Honor will also recall in connection with the modified section nothing was done until the P. W. A. said that they consented to it, because they were a party to the agreement; they were not signatories to the agreement, but they put up a million out of some three million of the amount, so you see that their rules and regulations would have to be complied with.

The Court: What is this agreement you are reading from?

Mr. Wittschen: This is a copy of the specifications which the plaintiff put in.

The Court: For the purpose of the record, what is the purpose of this offer?

Mr. Wittschen: The purpose of this offer is to show that the ruling was made prior to the res s-sion of the contract requiring the district to withhold penalties, and have that matter adjusted at the completion of the work, and not to waive them during the construction.

Mr. Marrin: Now, if your Honor please, in the first place this plaintiff was not a party to the agreement between the District and the P. W. A. with respect to the finances or any part of it, it had never seen it; it does not refer to this contract and is not made a part of the contract. Mr. Wittschen has referred to a certain section in the

(Testimony of Stephen Davidson Bechtel.)

supplement to the specifications which he has read to your Honor, and those provisions, we submit, relate entirely to the conditions surrounding the employment of labor. They relate to the number of hours that the men may be worked on the project per day and per week, and the wages that must be paid; [1264] and to say that you can extend that provision and give it the meaning that a letter from the P. W. A. can change any of the essential terms of the contract is giving it a meaning entirely beyond what was ever intended. The provisions in the contract and the specifications regarding extension of time are very clear. They are short and I might just read this portion. It says:

> "The time during which the contractor is delayed in said work by Acts of God, or by stormy or inclement weather, or by any reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof."

The effect of this letter from the P. W. A. is to state to the District that if they do not collect liquidated damages when the P. W. A. thinks they

(Testimony of Stephen Davidson Bechtel.)

should have collected them, then that amount would be deducted from the grant. Now, I submit to your Honor that that does not constitute itself any justification for denying an extension of time when the contractor was entitled to it under the terms of the contract, and I submit further that this so-called amendment to the specifications does not have the meaning which the defendant attempts to give it.

The Court: I am prepared to rule.

Mr. Wittschen: I just want to make one observation. It is not the letter we are introducing. I do not want your Honor to be confused. We are introducing an order which was made by the Assistant Administrator, acting for the Administrator, which was not promulgated as to this job, but as to all jobs in which the P. W. A. is interested, pending all over the United States. It is not a [1205] letter, counsel is misconstruing that, and these specifications that I have read do not refer only to employment of labor, they refer to all rulings of the P. W. A., and to say that the P. W. A. is not a party to this contract in view of the close relation they have had all the way through—you could not even drop a timber ten inches without their consent—is carrying the argument too far. It is an act of an executive branch of the Government of which the Court takes judicial notice.

The Court: The Court is prepared to rule. I am going to allow it to be admitted, subject to a motion

(Testimony of Stephen Davidson Bechtel.)

to strike, and over the objection of counsel, so that you can take it up at some future time and discuss it at length.

Mr. Marrin: Note an exception.

Mr. Alexander: We also note an exception.

Mr. Marrin: I would like to have the further ground of objection that it is not proper cross-examination of this witness.

Mr. Alexander: We join in the additional objection.

Mr. Tinning: Now, under the order that is made, do you wish us to offer all of these documents, or simply the matter the Court ruled on?

Mr. Marrin: I think they should all go in.

Mr. Wittschen: We are only interested in the order.

Mr. Smith: It shows on the face of it we did not get it until March, 1936.

Mr. Tinning: That is correct. We did not exact the penalty until June, 1936. The offer has been made and objected to, and admitted, and I offer it as Exhibit WWW.

(The document was marked "Defendant's Exhibit WWW.")

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT WWW.

United States Department of Agriculture
Bureau of Public Roads, District No. 2
461 Market Street, San Francisco, Calif.

March 4, 1936

In your reply please refer to
File: 483 Calif. 2231
Mr. Wallace B. Boggs, District Engineer
Joint Highway District No. 13
1448 Webster Street
Oakland, California.

Dear Sir:

I am enclosing a copy of Memorandum to all District Engineers, dated February 4, 1936 to which is attached Administrative Order No. 54 (Supplemental) of the Federal Emergency Administration of Public Works.

This order has to do with the procedure governing liquidated damages. For projects under the administration of the Bureau of Public Roads, the title "State Director" shall be interpreted to mean "District Engineer, U. S. Bureau of Public Roads."

Yours very truly,
(Signed) C. H. SWEETSER
District Engineer.

Enc.

United States Department of Agriculture
Bureau of Public Roads, Washington, D. C.

February 4, 1936

MEMORANDUM TO ALL DISTRICT ENGINEERS.

We are enclosing copies of Administrative Order No. 54 (Supplement 1) of the Federal Emergency Administration of Public Works.

This order applies to projects transferred to this Bureau by the Public Works Administration.

In the administration of PWA dockets by this Bureau, the same procedure governing liquidated damages as is now in effect under the Bureau's regulations will be followed.

THOS. H. MacDONALD
Chief of Bureau.

Enclosure.

P. W. 40444

Federal Emergency Administration of Public Works

August 29, 1935

Administrative Order No. 54 (Supplement 1)

SUBJECT: CONSTRUCTION CONTRACTS, LIQUIDATED DAMAGES ON

This Administration has adopted the policy of deducting from the grant base the sum equal to the liquidated damages which the borrower or grantee could have assessed against the con-

(Testimony of Stephen Davidson Bechtel.)

tractor or contractros for delay in completion, pursuant to the terms of the construction contracts, but which the borrower or grantee failed to deduct for reasons which this Administration considers inadequate.

Therefore, in order to expedite final payment of the grant, the following procedure shall be followed where a construction contract provides for liquidated damages.

As to those contracts which have not yet been completed, the State Directors shall ascertain, if possible, prior to the expiration of the time limit fixed in the contract, whether additional time will be required to complete the contract, and, if so, whether the borrower or grantee intends to waive liquidated damages, and, if so, its reasons therefor. In the event that the borrower proposes to waive such damages, the State Director should forward such information to Washington with all pertinent data, his recommendation and supporting information as to whether an extension of time should be allowed the contractor.

If, on contracts which have been completed, the borrower or grantee has already waived liquidated damages, the State Director shall require the borrower or grantee to furnish him with its reasons for such action and shall transmit such information to the Central Office with

(Testimony of Stephen Davidson Bechtel.)

all pertinent facts and his recommendation to the action taken.

After review of the information submitted pursuant to this order, the State Director will be advised of the approval or disapproval of the Central Office of the proposed action or of the action taken, as the case may be.

(Signed) HORATIO B. HACKETT
Assistant Administrator.

Engineering
Distribution:
General

[Endorsed]: Received March 7, 1936. J. H. D. #13.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. WWW. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

If your Honor please, the defendant offers in evidence and suggests that they be received as one exhibit, Estimates Nos. 1 [1206] to No. 23, engineering estimates upon which monthly progress payments were made, commencing with No. 1, which was issued for the period from June 4 to June 30, 1934, and closing with Estimate No. 23, which was issued for the period from April 1, 1936 to April 30, 1936. We ask that these be admitted as one exhibit.

(Testimony of Stephen Davidson Bechtel.)

The Court: Let them be admitted and marked.

(The estimates were marked "Defendant's Exhibit XXX.")

[Set forth in the Book of Exhibits at page 435.]

Mr. Tinning: Defendant now offers in evidence Estimate No. 24 covering the period from May 1 to May 31, 1936, accompanied by a copy of the letter transmitting the estimates and a photostatic copy of the check from the District to the Six Companies of California, Check No. 1934, dated June 10, 1936, for $148,586.98. This check was sent to the Six Companies with the estimate referred to and, gentlemen, so that there will be no mistake, I call your attention to some writing that appears on the face of the photostatic copy of the check, which was made recently, "Cancelled, Board of Directors, May 31, 1937," and similar endorsements have been put on the check that went in July to the Six Companies, because it was necessary for the District to cancel these checks, as the evidence will show, and they were returned to the District.

Mr. Wittschen: Will it be stipulated that when they were sent they were not marked "Cancelled," and they were only cancelled after you returned them?

Mr. Marrin: It will be stipulated that when these checks were received by the Six Companies that writing was not upon them.

Mr. Tinning: We offer this Estimate No. 24 and

(Testimony of Stephen Davidson Bechtel.)

the check, and the copy of the letter as Defendant's Exhibit YYY.

(The estimate was marked "Defendant's Exhibit YYY.")

[Set forth in the Book of Exhibits at page 458.]

[1207]

Mr. Tinning: We offer in evidence, if your Honor please, as Defendant's Exhibit in proper order, a letter from Six Companies of California, signed by Henry J. Kaiser, President, to Joint Highway District No. 13 of the State of California, and dated June 13, 1936, and ask that it be marked in evidence Defendant's Exhibit ZZZ. It reads:

[1208]

DEFENDANT'S EXHIBIT ZZZ.

Builders of Broadway Low Level Tunnel
Six Companies of California
1522 Latham Square Building
Oakland, California
Highgate 6334

June 13, 1936

Joint Highway District No. 13
of The State of California,
1448 Webster Street,
Oakland, California.

Gentlemen:

You are hereby notified that the undersigned, Six Companies of California, has elected to

(Testimony of Stephen Davi[illegible]on Bechtel.)

and does hereby terminate and rescind the contract dated June 4, 1934, between the undersigned and your District for the construction, erection and completion of the project of said Joint Highway District No. 13 of the State of California, which includes a highway, highway tunnels, and approaches with the appurtenant structures located partly in the City of Oakland, County of Alameda, State of California, and partly in the County of Contra Costa, State of California, commonly known as the Broadway Tunnel Project.

Said rescission is made upon the following grounds and each and all of them:

First: Through your fault the consideration for our obligations under said contract has failed in part in that you have failed and refused to pay us the amount estimated by you to be due us under the monthly estimate for work done during the month of May, 1936. Said failure consists in the deduction by you from the amount estimated by you to be due us for such work of the sum of $3,500 for claimed damages for failure to complete the work under said contract, said deduction being computed at the rate of $500 per day for each day in May 1936 following May 24th, and to and including the 31st day of May, and including such a deduction for a legal holiday, May 30, and a non-working day, Sunday, May 31st. Said deduc-

(Testimony of Stephen Davidson Bechtel.)

tion was and is contrary to and in violation of the terms of the contract in that we were and are entitled as a matter of right and of law to an extension of time thereunder for performance of same to a date after May 31, 1936; and was and is further in violation of the provisions of the said contract in that any damages for delay in completion of the contract can only be asserted or claimed against the contractor for working days after the contract date for completion.

Second: That the consideration for said contract has failed in a material respect in that you have breached said contract by refusing to pay us the amount due us under your monthly estimate for work done during the month of May, 1936. Said failure consists in the deduction by you from the amount due us for such work of the sum of $3,500 for claimed damages for failure to complete the work under said contract within contract time, said deduction being computed at the rate of $500 per day for each day in May, 1936 following May 24th, and to and including the 31st day of May, and including such a deduction for a legal holiday, May 30th, and a non-working day, Sunday May 31st. Said deduction was and is contrary to and in violation of the terms of the contract in that we were and are entitled as a matter of right and of law to an extension of time thereunder

(Testimony of Stephen Davidson Bechtel.)

for performance of same to a date after May 31, 1936; and was and is further in violation of the provisions of the said contract in that any damages for delay in completion of the contract can only be asserted or claimed against the contractor for working days after the contract date for completion.

Third: That in failing to pay said sum mentioned in numbered paragraphs First and Second above and by your refusal to grant said extension of time you have breached said contract, and ground for rescission has arisen in our favor.

Fourth: That your failure and refusal to grant us the extensions of time to which we are entitled as a matter of right and of law for completion of said contract after May 24, 1936, although we have repeatedly requested the grant of such extensions is a breach of the contract.

Fifth. Because the ground encountered in the excavation for the tunnels provided for in the contract has been and is entirely and radically different from the character of ground represented to the contractor as that which would be encountered, and which was contemplated and predicted by the contract, geological report, specifications, plans and any and all other documents forming a portion or part thereof.

Sixth: For your failure and refusal to furnish points, lines and grades for us to work to

(Testimony of Stephen Davidson Bechtel.)

and other engineering work in the construction of the tunnels as is required to be done or furnished by you by the terms and provisions of the contract and specifications forming a part thereof.

Seventh: Because the work which is necessarily required to be done to construct the tunnels under the ground conditions actually encountered at their site is not provided for in the contract and was not contemplated by the parties at the time the contract was made.

Eighth: For any and all other grounds of rescission of said contract of June 4, 1934 which may have heretofore existed or which do now exist in favor of the undersigned.

We are returning herewith to you your check #1934 dated June 10, 1936 in purported payment of the estimate for the work done by us during the month of May, 1936.

Very truly yours,
SIX COMPANIES OF
CALIFORNIA
By (Signed) HENRY J. KAISER
President.

[Endorsed]: Received June 15, 1936. Joint Highway Dist. No. 13. Personally handed to me at 9:40 a. m. June 15, 1936. Wallace B. Boggs.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. ZZZ. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(Testimony of Stephen Davidson Bechtel.)

I think it may be stipulated that this letter of rescission was personally delivered to Wallace B. Boggs, at 9:40 a. m., on June 15, 1936, and that also a letter was mailed on June 13, the date that this letter bears, which contained a copy of this same letter, a duplicate original, we may call it, and it was received by mail by the District on June 15, 1936.

Mr. Marrin: That will be stipulated to, and will it be stipulated that the check which was introduced as a part of Defendant's Exhibit YYY was returned to the District?

Mr. Tinning: As stated in the letter and received by the District with this letter.

Mr. Marrin: And subsequently cancelled?

Mr. Tinning: And subsequently cancelled. I want the stipulation with respect to the cancellation, that it was cancelled on the 31st of May, 1937, more than one year afterward.

Mr. Marrin: Yes. I just wanted it clearly stipulated that the check was never paid by the District.

Mr. Tinning: I would like to offer in evidence as Defendant's Exhibit A-4 a letter dated June 15, 1936, signed by Six Companies of California, Henry J. Kaiser, President, addressed to the District. It reads as follows: [1211]

(Testimony of Stephen Davidson Bechtel.)

DEFENDANT'S EXHIBIT A-4.

Builders of Broadway Low Level Tunnel
Six Companies of California
1522 Latham Square Building
Oakland, California
Highgate 6334

June 15, 1936

Joint Highway District No. 13
Of The State of California,
1448 Webster Street,
Oakland, California.

Gentlemen:

Having rescinded our contract with you dated June 4, 1934, for the reasons heretofore stated in a notice of rescission dated June 13, 1936, and heretofore delivered to you, we have ceased all operations under said contract.

In order to protect temporarily the work which has been done, and for that purpose only, we are continuing to operate the pumps and keep watchmen at the site for a sufficient time to enable you to take over these operations.

You are notified that, except for such watchmen as are necessary to protect our own property, we will remove all our employees from the site of the work, including those operating the pumps and watching your property, at midnight Tuesday June 16, 1936. If you desire the pumps operated and the property guarded after that time you must arrange to carry on this

(Testimony of Stephen Davidson Bechtel.)

work with your own employees and solely at your own cost and risk.

Very truly yours,
SIX COMPANIES OF CALIFORNIA

By (Signed) HENRY J. KAISER
President.

[Endorsed]: Received June 15, 1936. Joint Highway Dist. No. 13. By Received 2:35 p. m. Wallace B. Boggs.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. A-4. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit A-4.")

The Court: We will take a recess for a few minutes.

(After recess):

Mr. Tinning: Q. Mr. Bechtel, if I understood your testimony on direct you ceased to be president of Six Companies, the plaintiff in this case, on or about the 29th of February, 1936? A. Yes.

Q. That was a few days following the slide that occurred on the 22nd, or the cave-in that occurred on the 22nd of February, 1936? A. Yes.

(Testimony of Stephen Davidson Bechtel.)

Q. And after that time Mr. Kaiser became president and continued as president of the company? A. Yes.

Q. You were connected with the company thereafter, were you not?

A. I continued to be a director.

Q. Were you out around the work after that time? A. Not a great [1212] deal.

Q. In other words, you were not as closely connected with the work after that as you had been when president of the company?

A. That is correct.

Q. Don't you know as a matter of fact that every day in May of 1936 after May 24th that Six Companies' men worked on the work driving the Broadway Low Level Tunnel up till and including June 1, both Sunday and Memorial Day?

A. No, except as hearsay.

Q. You do not question it as a fact that the records of the company show that the men were working, full crews, on those days?

A. I do not question that they were working, but as far as my personal knowledge goes, or having examined the records, I do not know, but I presume they did work.

Mr. Tinning: You will stipulate, gentlemen, will you not, that the men and crews actually worked on Memorial Day, May 30, 1936, and on Sunday, May 31?

(Testimony of Stephen Davidson Bechtel.)

Mr. Marrin: I think so, but we will have to check the records on that.

Mr. Tinning: I did not want to waste time on that if we could avoid it. I am positive they did.

The Court: It may be stipulated subject to correction after examination of the records.

Mr. Tinning: It is stipulated subject to correction?

Mr. Marrin: That the men did work?

Mr. Tinning: Yes.

Mr. Marrin: Yes.

Mr. Tinning: Q. Mr. Bechtel, from these letters that were written here it appears that on June 13 notice of rescission was actually sent out, and as a matter of fact that was Saturday night, was it not? A. I do not recall.

Q. Weren't you present at a meeting of the Board of Directors at [1213] which the action of the Six Companies was decided upon, and to serve this notice of rescission?

A. If there was a meeting of the Board of Directors so held then, and I believe such a meeting of the Board of Directors was held, but so far as being at any meeting on any Saturday night, I do not think any meeting was held, and if so I was not there.

Q. I was not there, but I understand that there was a meeting held of the Board of Directors of Six Companies, of which you were a member, on the 13th day of June, 1936, the day that the notice

(Testimony of Stephen Davidson Bechtel.)

of rescission was given. Were you present at that meeting?

A. In June, and about that time, a meeting was held; as to the time, place and day I am not clear on right now. I will check the records on that.

Q. Mr. Bechtel, do you mean to say that you have not any recollection of the meeting at which the action was taken by the Board of Directors?

A. I said I attended such a meeting, but the time and place I do not remember.

Q. Wasn't it the same day that this rescission notice was given?

A. I don't know whether it was or not.

Q. Isn't it a fact that the meeting started sometime in the day and continued through the afternoon and evening till sometime around ten o'clock at night? A. I have no such recollection.

Q. You have no such recollection?

A. No.

Q. Were you present in the room of the directors when Mr. Paul St. Sure, one of your attorneys, telephoned to me at 10:45 P. M. on June 13 and said he was closing down the job at 11 o'clock?

A. I have no such recollection.

Q. You did not have that in mind when you testified yesterday you were driven off the work?

A. The telephone conversation?

Q. Yes.

A. As I say, I do not recall any such telephone conversation. [1214]

(Testimony of Stephen Davidson Bechtel.)

Q. You did not have in mind the action of Six Companies in ceasing work occurring at 10:45 p. m. on the night of June 13, 1936?

A. The comment I made that we were driven off the work came to my mind because of the action of the District in deducting or penalizing us for not having completed in accordance with the original date of the contract, and after we had been assured or told that we were entitled to an extension of time, and when you assessed these penalties, in my mind, it was a breach of faith; it was not in accordance with the understanding or the thought or the assurance which I felt we had been given, and which in turn I had reflected up to that time to our board of directors, that we had been told that we were entitled to an extension of time, it was just a question of when and the amount.

Q. You were a member of the directors in May, 1936? A. Yes.

Q. You were a member of the Board of Directors at that time when you applied for an extension of time of 600 days, were you?

A. I have been a director of Six Companies of California since its inception, or since May 15, 1934, up to and including to-day.

Q. You had cognizance of the fact that on May 8, 1936, Six Companies applied for a 600-day extension of time?

A. No, I did not. As a matter of fact, until recently here I did not know that an application had

(Testimony of Stephen Davidson Bechtel.)

been made to the extent of 600 days, and I understood that such application was to be made, and an application was being made by Mr. Kaiser, that was a matter which had been referred to Mr. Kaiser for handling by the Board of Directors, and Mr. Kaiser kept the Board of Directors generally informed of the important matters.

Q. You knew then, following May 8th, and on May 14, that the District had denied your application? A. No, I did not.

Q. You did not? A. No.

Q. So when you attended the meeting on June 13 and you knew that [1215] a penalty had been assessed you did not know that the application for 600 days extension of time had been denied a month before?

A. I knew that an application had been made, I was told that at some period in between those dates, I do not recall the exact date, that an application had been made and the application had been denied; I did not know the extent or the days involved.

Q. Did you know that after the application was denied that Six Companies made any request of the District to waive the penalty or to await the determination as to whether or not the penalty would be waived until the job was completed?

A. No, I did not know that, and I do not know it now.

(Testimony of Stephen Davidson Bechtel.)

Q. You don't know whether it ever happened?

A. I don't know whether it ever happened. The matter was handled by Mr. Kaiser.

Q. Did he ever report to you as a member of the Board of Directors that he had communicated or written and asked them to waive the matter of imposing the penalty until the job was done, when it might be fought out or threshed out and determined?

A. I knew of no such communication but it might have taken place.

Q. You don't know that?

A. I don't know that.

Q. As a matter of fact, it never took place?

A. I don't know that it took place or not.

Q. Now, it is a fact that the work was shut down at 11 p. m. on the night of June 13, 1936, is it not? A. I understand that.

Q. On Saturday night, and that the warning of shut-down was just fifteen minutes of notice was given to me by Mr. St. Sure, one of your attorneys?

A. I don't know that.

Q. You don't know that? A. No.

Q. You don't doubt it, do you?

A. If you say it is so it must be.

Q. And we got the letter of rescission on Monday morning, the 15th of June, 1936?

A. You so testified this morning.

Q. You have been following the testimony very closely. [1216]

(Testimony of Stephen Davidson Bechtel.)

We offer in evidence as Defendant's Exhibit B-4 a letter dated June 16, 1936, addressed by Joint Highway District 13 to Six Companies of California, and ask that the letter be admitted in evidence. It reads as follows: [1217]

DEFENDANT'S EXHIBIT B-4.

June 16, 1936

Six Companies of California
1522 Latham Square Building
Oakland, California

Gentlemen:

Your letter of June 13, 1936 in which you notified this District of a purported termination and rescission of your contract with this District dated June 4, 1934, has been received and considered by the Board of Directors of the District, and this reply thereto is made at the direction of the Directors of the District.

You are hereby advised that Joint Highway District No. 13 of the State of California considers all of the grounds stated by you as a basis for your attempted rescission and termination of the contract are without basis in fact or law; that this District has fully paid all sums required to be paid, performed and done all things required to be performed and done by it under the said contract, and that you, as such contractor, have no valid grounds

(Testimony of Stephen Davidson Bechtel.)

or reason whatsoever for your attempted rescission and termination of the contract.

You are advised that your cessation of work upon the project and your withdrawal of workmen from the construction of the project constitutes an abandonment by you of the work to be done under the contract; that your said acts which unnecessarily and unreasonably delay and continue to delay the work you contracted to perform, and your attempted rescission and termination of the contract, and each and all of them, constitute wilfull breaches of the contract by you.

You are further advised that unless you as said contractor resume work on the project and perform the same in accordance with all of the terms thereof within three (3) days of the date of your receipt of this letter, that this District will consider your acts and conduct as aforesaid a final abandonment of the contract and the work to be done thereunder, and the District will proceed to complete the same in accordance with the provisions of the contract, and that the District will hold you and your bondsmen liable for any and all costs thereof in excess of the contract price and any and all damages to this District by reason of your wilfull abandonment of the work in violation of

the terms of your contract with this District dated June 4, 1934.

Yours very truly,
JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA,
By (Signed) L. V. EATON
Assistant Secretary

cc to all bonding companies

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. B-4. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit B-4.")

Gentlemen, will it be stipulated that a similar letter was sent by the District to all of the sixteen bonding companies which were sureies on the bond in this matter under date of June 16, 1936?

Mr. Alexander: That is the fact.

Mr. Tinning: And that said letter was received by all of the bonding companies? We have a return receipt to that effect.

Mr. Alexander: Yes, it is stipulated that a copy of the letter that you wrote was sent to the sixteen surety companies and received by them.

Mr. Tinning: And also the copy was accompanied by this letter?

Mr. Alexander: So stipulated.

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: The letter which was sent to all of the bonding companies, which it has been stipulated was received, we will ask [1218] to be introduced and marked as Defendant's Exhibit C-4. It reads as follows: [1219]

DEFENDANT'S EXHIBIT C-4

June 16, 1936

Hartford Accident and Indemnity Co.,
720 California Street,
San Francisco, California,

Gentlemen:

Enclosed herewith please find a copy of a letter addressed to the Six Companies of California, contractor under the contract dated June 4, 1934, with this District, which is sent you that you as one of the co-sureties on the bond securing materialmen and laborers and the bond for faithful performance furnished with and forming a part of the said contracts, may as such surety be advised of an attempted rescission and termination of the contract and work thereunder by the contractor, Six Companies of California, and of the fact that this District considers said action an abandonment of the work by the contractor.

You will please advise this District if you and the other co-sureties under said bonds elect to proceed with the completion of the work

(Testimony of Stephen Davidson Bechtel.)

which the contractor is attempting to repudiate, and if you do not advise this District within three (3) days of the date of your receipt of this letter that the bondsmen intend to perform the remainder of the work under the terms of the contract, the District will proceed to perform the work and pay for the same in accordance with the terms of the contract, holding the contractor and all of the sureties on said bonds liable for any cost in excess of the contract price, and any and all damages to the District by reason of the wilfull abandonment of the work by the contractor and its failure to perform the same, and from any and all other causes proper under the contract.

Yours very truly,

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA,

By L. V. EATON,

Assistant Secretary.

(Identical letter addressed to each bonding company.)

(Testimony of Stephen Davidson Bechtel.)

Name of Surety	Percentage of Liability	Amount of Liability
Hartford Accident and Indemnity Company, a Connecticut Corporation	10%	$184,200.00
Fidelity and Deposit Company of Maryland, a Maryland Corporation	10%	184,200.00
The Aetna Casualty and Surety Company, a Connecticut Corporation	10%	184,200.00
Indemnity Insurance Company of North America, a Pennsylvania Corporation	10%	184,200.00
American Surety Company, a New York Corporation	10%	184,200.00
Fireman's Fund Indemnity Company, a California Corporation	7%	128,940.00
Maryland Casualty Company, a Maryland Corporation	6½%	119,730.00
United States Fidelity and Guaranty Company, a Maryland Corporation	6½%	119,730.00
Fidelity and Casualty Company of New York, a New York Corporation	5%	92,100.00
Glens Falls Indemnity Company, a New York Corporation	4½	82,890.00
Standard Surety and Casualty Company of New York, a New York Corporation	4%	73,680.00
Standard Accident Insurance Company, a Michigan Corporation	4%	73,680.00
Pacific Indemnity Company, a California Corporation	4%	73,680.00
Massachusetts Bonding and Insurance Company, a Massachusetts Corporation	4%	73,680.00
Continental Casualty Company, an Indiana Corporation	2½%	46,050.00
New Amsterdam Casualty Company, a New York Corporation	2%	36,840.00
TOTAL	100%	1,842,000.00

[Endorsed]: U. S. Dist. Ct., N. D. Cal. No. 20101-R. Deft's Ex. No. C-4. Filed April 28, 1938. Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

(Testimony of Stephen Davidson Bechtel.)

(The letter was marked "Defendant's Exhibit C-4.")

Now, gentlemen, will it be stipulated on the part of counsel for plaintiff, the Six Companies, that they did not return to work within three days or any other time?

Mr. Marrin: It is so stipulated.

Mr. Tinning: And on behalf of the surety companies, Mr. Alexander, will it be stipulated that following the receipt of this notice none of the surety companies took over the work and proceeded with the completion of the work?

Mr. Alexander: So stipulated.

Mr. Tinning: Defendant offers in evidence a letter dated July 9, 1936, addressed to Six Companies of California, together with Estimate No. 25 of the District Engineer, covering the work from June 1, 1936, to June 13, 1936, the estimate having been filed or issued as of July 9, 1936, together with a check of the district in payment of the amount of the Engineer's Estimate for the work during the period from June 1 to June 13, 1936, the check being numbered 2201 of the District, and being for the sum of $80,715.66, and covering the Engineer's Estimate which deducted the penalty of $500 a day for the thirteen days in June, which the contractor worked. We offer the letter, the estimate, and the check as one exhibit, D-4.

(The letter was marked "Defendant's Exhibit D-4.")

(Testimony of Stephen Davidson Bechtel.)

Under the terms of the contract, your Honor, the contractor was entitled to payment for the work in the preceding month based upon an engineer's estimate, and the making of progress payments on or about the 10th day of the succeeding month.

The Court: Coupled with the fact that there was a deduction for penalty in this case and in May?

Mr. Tinning: 7 days on May and 13 days in June. [1220]

The letter reads as follows:

[Set forth in the Book of Exhibits at page 461.]

Now, the check accompanying this Exhibit D-4 bears a similar notation that was written upon the face of it thereafter. May it be stipulated that when the check was sent to Six Companies, the plaintiff in this case, that there was no such notation on it?

Mr. Marrin: So stipulated.

Mr. Tinning: And may it also be stipulated, as stated in the letter, that the check which had been first sent to the Six Companies on June 10, 1936, was also included and enclosed and tendered again; in other words, that there was a second tender of the check?

Mr. Marrin: Yes.

Mr. Tinning: Both payments. [1221]

Mr. Marrin: Will it also be stipulated that the District never tendered the amount of $3500 for May and the amount of $6500 for June, the deduction penalty?

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: I will stipulate to that, the proof is unequivocal, that they did not.

We offer in evidence a letter dated July 15, 1936, from Six Companies of California, signed by Henry J. Kaiser, President, to Joint Highway District No. 13, which we ask be marked "Defendant's Exhibit E-4. It reads as follows:

DEFENDANT'S EXHIBIT E-4

Builders of Broadway Low Level Tunnel
Six Companies of California,
1522 Latham Square Bldg.,
Oakland, California.
Higate 6334
July 15, 1936

Joint Highway District #13
of the State of California,
1448 Webster Street,
Oakland, Calif.

Gentlemen:

We hereby acknowledge receipt of your check No. 1934 in the amount of $148,586.98 and also your check No. 2201 in the amount of $80,715.66 dated June 10, 1936, and July 9, 1936, respectively.

By notice dated June 13, 1936, and heretofore delivered to you, the undersigned rescinded said contract for the reasons and upon the grounds stated in said notice.

(Testimony of Stephen Davidson Bechtel.)

Said checks are hereby returned to you.

Very truly yours,

SIX COMPANIES
OF CALIFORNIA,

By (Signed) HENRY J. KAISER, Pres.

By T. M. PRICE.

T. M. Price/w

Receipt of the checks described within is hereby acknowledged this 15th day of July, 1936.

JOINT HIGHWAY DISTRICT NO. 13,

By (Signed) W. B. B.

[Endorsed]: Received July 15, 1936. Joint Highway Dist. No. 13. 3:45 p. m.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. E-4. Filed April 28, 1938. Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Defendant's Exhibit E-4.")

Q. Mr. Bechtel, returning now to your testimony respecting the conversation or statement——

Mr. Marrin: Mr. Tinning, before you go on would you stipulate that the District did not at any time send to the plaintiff in this case any of the letters or documents that have been intro- [1222] duced as Defendant's Exhibit WWW?

Mr. Tinning: That is the P.W.A. letter?

(Testimony of Stephen Davidson Bechtel.)

Mr. Marrin: Yes.

Mr. Tinning: Yes.

Q. As I understood your testimony respecting your conversation with Mr. Boggs during April or May, 1935, or as near as you can place that conversation, it was in that period you testified, April or May, you have not the specific date when it occurred? A. That is right.

Q. You kept no memorandum of the conversation? A. That is right.

Q. Now, Mr. Bechtel, is it not a fact at this conversation which occurred just before the noon hour, at the front steps of Six Companies office, near the west portal, I think you called it the job office, that is what we are referring to, in addition to yourself and Mr. Price and Mr. Boggs, that Prof. Charles Derleth, Jr., of the University of California, one of the District's consultants, was present?

A. That is not correct.

Q. That is not correct? A. No.

Q. Isn't it a fact that you only had one conversation with Mr. Boggs at any time in April or May, 1935?

A. I would not say that is correct.

Q. Have you any memoranda or records that indicate that you had more than one conversation with him during that period? A. No.

Q. Have you got any memorandum of any conversation with Mr. Boggs?

A. Written at the time, do you mean?

(Testimony of Stephen Davidson Bechtel.)

Q. Written at the time. A. No.

Q. Why did you say you are uncertain that you had more than one conversation with Mr. Boggs in April or May, 1935?

A. Because from time to time I was on the job and saw Mr. Boggs there, and at times exchanged pleasantries, and other times discussed the job in generalities, and that is my reason for saying it might have [1223] been the case.

Q. Mr. Bechtel, is it not a fact, and was it not a fact that the conversation that you referred to occurred on May 21, 1935?

A. I don't recall the date.

Q. Do you recall that it occurred shortly before the noon hour?

A. No, I think, on the other hand, it occurred some place probably between 9 and 9:30 or ten o'clock, and the reason I say that is it was my practice or custom usually to leave home sometime between 6:30 and 8:30, and coming to San Francisco via the job, when I was going to the job, and very seldom came out that late.

Q. Then you are fixing the time by reason of your custom and not by any independent recollection of what occurred on the day of the conversation which you testified to?

A. That is correct.

Q. You have no notes made of it at the time?

A. No.

(Testimony of Stephen Davidson Bechtel.)

Q. Isn't it a fact that this conversation occurred, you and Mr. Price were near the job office, and that Prof. Derleth and Mr. Boggs came out of the tunnel just before noon and walked down toward you and met you at the job office?

A. Not this discussion, Mr. Tinning; you might be thinking of some other pleasantries or general conversation, but not this discussion.

Q. I am not talking about any pleasantries, I am talking about conversation.

A. There were pleasantries, but this discussion was held in front of the job office, in front of the steps, in fact, we sat on the front steps a portion of the time; there were only three people there, there was Mr. Tom Price, Mr. Boggs, and myself. Prof. Derleth was not there.

Q. Isn't it a fact at this time and place that this conversation occurred, that the conversation was opened after you greeted them, greetings back and forth by Prof. Derleth telling you that he was very much surprised about your delay in installing concrete lining in the tunnel, the timbers had been standing a long time and that [1224] you ought to get the concrete going as soon as possible?

A. No.

Q. Did he ever tell you that at any time?

A. As you state it, no.

Q. Or in substance and effect?

A. There was a conversation——

(Testimony of Stephen Davidson Bechtel.)

Q. Will you answer "Yes" or "No," and then explain? A. No, not as you stated.

Q. Will you tell us what he did say, and first tell us when?

A. I would place it some place in the month of July, Prof. Derleth and I happened to meet some place on the job, and he commented with the thought the tunnel lining or concrete should be expedited, or as rapidly as possible. I told him that was correct, that was our purpose, and we were proceeding accordingly. That, in substance, was the discussion I had with Prof. Derleth.

Q. This was in July?

A. I think it was some time in July.

Q. It was after the concreting started?

A. That would be approximately correct.

Q. July 2 was when you started pouring the first concrete footings in the tunnel after December, 1934?

A. If you say that was the date, it was during the month of July, you would be correct.

Q. Then was your conversation with Prof. Derleth before you started pouring the concrete in the tunnel or afterward?

A. I would say it was during the month of July.

Q. Would you answer my question?

Mr. Marrin: I think he answered the question perfectly clearly. He fixed the time and fixed the occasion.

(Testimony of Stephen Davidson Bechtel.)

Mr. Tinning: Q. Was the conversation which you had with Prof. Derleth that you have referred to before or after the concrete pouring was started in the tunnel? A. I do not recall.

Q. Did you make any note of that conversation?

A. No.

Q. Isn't it a fact that at the time and place mentioned, May 21, Prof. Derleth also told you that for a long time he had been telling [1225] Six Companies' representative on the job that the concreting should not be delayed, and that he wanted to impress upon you, mentioning you as president of the company, that you should get the concrete lining in at once?

A. I do not think any part of that is correct. I have no recollection of such a conversation, and I do not believe he ever told me that at that time, or at any other time.

Q. You knew that Prof. Derleth was one of the consultants of the District, who had been in the District and had been on the job practically all the time the work was under way?

A. You say all the time. He had been there occasionally, maybe once a month, and maybe once every two months. As a matter of fact, if I recall correctly, he had not been there very often up until about the time of the unfortunate cave-in of August 28th.

Q. Your recollection is that Prof. Derleth had

(Testimony of Stephen Davidson Bechtel.)

not been around the work there very often until just about the cave-in of August, 1935?

A. I think that is correct. That is my recollection. You asked me something that I have not thought of.

Q. That would be subject to correction if he had kept a record of it? A. Absolutely.

Q. You don't know?

A. He might have been, when I did not see him, but as far as my recollection or knowledge goes I have no recollection of it.

Q. You knew he was one of the original designers of this tunnel section?

A. No. He was there as a consultant. I doubt very much whether he was one of the designers, because consultants usually do not do the designing, they do the consulting generally.

Q. You don't know whether or not Prof. Derleth was one of the men who participated in the design of the tunnel section, both A and B? A. No.

Q. That was finally excavated?

A. His name was on the outside of the big volume of plans, in large letters. [1226]

Q. Did it lead you to believe from reading his name there that he had something to do with this job?

A. I knew that he was a consultant on the job.

Q. And that he was on the job at least as early as March 30, 1933, when the plans and specifications were adopted?

(Testimony of Stephen Davidson Bechtel.)

A. By "on the job" you mean connected with it?

Q. With the District. A. Yes.

Q. Now, then, is it not a fact that at this conversation Mr. Boggs, in reply to your request or statement that you desired to apply for an extension of time, Mr. Boggs stated to you that it was not apparent at that time that the Six Companies would require an extension of time and that before any extension of time could be granted it would have to be approved by the P.W.A. and the Board of Directors of the District, that in order to get such approval the Six Companies would have to have a good and substantial reason, and that he, Mr. Boggs, knew no reason for an extension and would not recommend it?

A. No, that is not correct. Mr. Boggs did say that he did not favor the extension of time at that time, because he did not know in substance, he did not know what period would be required.

Q. Isn't it true that at the time Mr. Boggs suggested that you defer your request for an extension of time until a short time before the completion date under the contract and that if it was then evident that Six Companies could not finish within the contract time——

A. He said he did not favor our making an application at that time.

Q. Will you please listen to this question and say whether this is a fact. I would like to have an answer. A. I have answered you.

(Testimony of Stephen Davidson Bechtel.)

Q. I think not.

Mr. Marrin: I submit the witness has answered it fair and [1227] square, right on the nose.

Mr. Tinning: I am going to ask it again. Is it not true at this time and place Mr. Boggs suggested that Six Companies defer any request for an extension of time until a short time before the completion date established by the contract, if it was then evident that Six Companies could not finish within the contract time?

A. No, not as you state it. He said that he did not favor our making application for an extension of time then.

Q. Isn't it true that in reply to Mr. Boggs' statement to you that you said to him that you felt it was necessary to put in the request at that time as a matter of record, and that you were going to do so? A. Yes.

Q. Isn't it a fact that at this conversation regarding the extension of time that nothing was said or claimed by you with respect to any condition or conditions on the job that were beyond your control? A. No.

Q. Isn't it a fact that at the time of this conversation you stated nothing whatsoever about ground conditions being different than had been anticipated?

A. No; on the contrary, I stated that they were different than anticipated.

(Testimony of Stephen Davidson Bechtel.)

Q. What did you say at that time and place regarding any condition or conditions that you claimed were beyond your control, everything you said that you can remember?

A. To the best of my recollection I said in substance that the conditions on the job that had developed that were beyond our control substantially were as follows, that the ground conditions were far different from what had been anticipated, the weather for that period had been abnormally bad, and that we were having difficulty under the regulations of the contract, the restrictions in the contract, in getting an adequate supply of experienced men. That was in substance the point which I discussed, and that was with reference to all of the points that I [1228] discussed.

Q. Was that the first time that you ever communicated to Mr. Boggs the fact that the ground conditions were worse than you anticipated?

A. I believe it was.

Q. You have, as I understand, no notes or dates in your records to show when this conversation you referred to with Mr. Boggs occurred? After the notice or request for extension of time had been filed with the District, you remember you testified and said that the conversation occurred when you and your brother, Kenneth Bechtel, encountered Mr. Boggs somewhere on the job near the west portal, and it was a few days following the presenting

(Testimony of Stephen Davidson Bechtel.)

of your request for an extension on June 10, 1935. Is it not a fact that at this conversation that it was Mr. Kenneth Bechtel who asked Mr. Boggs if he, Boggs, had received the Six Companies' application for an extension of time? A. I don't recall.

Q. Isn't it true that Mr. Boggs at that time replied to them it was embarrassing to him because you had been asking for extensions and "I did not like to have to turn you down, but I know of no reason on which I could recommend an extension of time?"

A. I do not recall any such comment as that. I do recall that he said that it was embarrassing, and I also recall that he was disturbed over the matter.

Q. Do you remember another conversation with Mr. Boggs in June of 1935, near the east portal of the tunnel, at which were present yourself, Mr. T. M. Price, the project manager, Resident Engineer Gelston and District Engineer Boggs—the conversation occurring, as I understand it, near the east portal of the tunnel?

A. I do not recall at this time.

Q. Do you recall at that time and place this conversation occurred on June 20, 1935, at which time you stated that the district inspectors were too severe in their inspections and insistence that the work [1229] be done in accordance with the specifications?

A. No, I do not recall that, but it is quite possi-

(Testimony of Stephen Davidson Bechtel.)

ble that I said something to that effect. I doubt whether I said it in those words. I might have said that the district inspectors were abnormally severe and were going beyond common practice of construction, and beyond what was necessary to get the type of structure that was required in the specifications and contract, and for the work that was involved.

Q. And at the time, June 20, 1935, no concrete lining had been placed after December 5, 1935, so that the matters to which you were referring were inspection of outside work?

A. It might have been both; if it was said, and I do not say that it was said, but if it were said it undoubtedly came, my state of mind came from having observed the inspection which was being applied to both concrete structures and other portions of the work, in other parts of the job.

Q. In other words, the subcontractors as well as the contractor were required to build the work in accordance with the plans and specifications?

A. The subcontractors, as well as our own men, felt that they were being required to do an abnormal exactness of requirements.

Q. At this time, in referring to your statement with respect to the severity of the inspectors did Mr. Price state to Mr. Boggs and Mr. Gelston in your presence that Six Companies was ready and willing to furnish any amount of concrete and reinforcing steel necessary, the District to pay for the reinforcing steel, if the District would cooperate

(Testimony of Stephen Davidson Bechtel.)

and permit Six Companies to let the timbers intrude into the concrete lining section where the concrete was unplaced?

A. I don't recall that statement, but it is possible he made it.

Q. And then, following that request of Mr. Price to Mr. Boggs, did you hear Mr. Boggs tell him, Mr. Price, in your presence, that he would not permit Six Companies to place the concrete in if [1230] the timbers extended into the neat section?

A. I don't recall that, but on that point I would like to clarify, if I may, something that I said here yesterday, in which I possibly misstated or misinterpreted something. The question of the intrusion of the timbers, or the moving of the timbers was under discussion, and I think I told you that I did not know—the subject had come up without any previous thought on my part, without my knowledge you were going to bring it up, and my discussions were impromptu, I think I said I believed Mr. Price and Mr. Boggs had discussed the intruding of timbers, and that Mr. Boggs had first permitted one-quarter of an inch, and then half an inch, and then an inch. That was at that time my best recollection, or at least my understanding of it. However, subsequent to that I have gone to Mr. Price and checked the correctness of that, and I wish now to say that I was in error; I was under that impression, but I am advised by Mr. Price that was not the case, and I wish to withdraw that and clarify that.

Q. And that you were not authorized at any

(Testimony of Stephen Davidson Bechtel.)

time by Mr. Boggs to permit the intrusion of timbers into the concrete section?

A. That is correct.

Q. Following that conversation, the statement between Mr. Price and Mr. Boggs, do you remember that at that conversation you told Mr. Boggs that you had complained to him regarding the insistence, the rigorous insistence on following the plans and specifications on behalf of the subcontractors, and now that you had said it and had his reply, that you wanted him to know that Six Companies was going to insist as it proceeded with the concreting of the tunnel that the district inspectors be more cooperative?

A. I do not remember the discussion you are referring to, and who was present, if there was one, but it is quite possible I would say that, because I felt that very sincerely.

Q. Isn't it true at that time and place that Mr. Boggs told you [1231] that the inspectors were required to see that the work was done in accordance with the specifications and that they would continue to see that the work was done in substantial compliance with the terms of the contract and specifications?

A. I don't recall his saying that, but he may have, because that was the procedure which he generally followed.

Q. And that the contractor would not be permitted to install the concrete lining with the timbers intruding into the section?

(Testimony of Stephen Davidson Bechtel.)

A. I don't recall that.

Q. You would not say that did not occur?

A. No, I have no recollection of it.

Q. You testified that sometime in November of 1935 at a conversation with Mr. Boggs, I think you said Mr. Hindmarsh was present. Do you remember that meeting? A. Yes.

Q. Are you able to fix the date on that, Mr. Bechtel?

A. I believe it was November 19, and the reason I say that is because the next day I dropped a memorandum to Mr. Hindmarsh to get his construction schedule, and that had been discussed.

Q. That is the only way you have of fixing that date? A. Yes.

Q. Where did that conversation occur?

A. In the office of Mr. Hindmarsh and Mr. Price, in Six Companies' job office, and more particularly in the room that Mr. Hindmarsh and Mr. Price were occupying.

Q. And present at that meeting were Mr. Hindmarsh, yourself, Mr. Delancey Smith, and Mr. Boggs? A. Yes.

Q. Isn't it a fact that when Mr. Boggs came to the meeting that Mr. Smith asked him what had happened in regard to the 48-hour week authorization? A. I have no such recollection.

Q. Isn't it a fact that in reply to that inquiry Mr. Boggs stated to him that he, Mr. Boggs, had notified Mr. Price by telephone immediately on receipt of the authorization from Mr. Sweetser,

(Testimony of Stephen Davidson Bechtel.)

[1232] that he sent him a copy of Sweetser's letter at once?

A. He may have said that, I have no recollection of it. However, I do recall that at some time Mr. Boggs did phone Mr. Price—this is hearsay, but I understood from Mr. Price that Mr. Boggs had phoned him that we could proceed with the 40-hour per week, and that he would confirm it in due time, not 48.

Q. Let us get this straight. After the accident in 1935 you applied to the Board of Directors of the District on the 5th day of October, 1935, and made formal application for a 48-hour week in accordance with the recommendation of the Industrial Accident Commission of this State?

A. You may be correct.

Q. Evidence went in yesterday to show that you were authorized to work and you commenced working your crews 48 hours a week on the 13th day of October, 1935; that is true, is it not?

A. That we started work in October?

Q. On the 48-hour week.

A. I don't recall the date.

Q. And a letter went in here yesterday from Mr. Sweetser dated October 12, 1935, authorizing the 48-hour week.

A. I would not deny that. It is probably correct.

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.)

[1233]

(Testimony of Stephen Davidson Bechtel.)

Afternoon Session

STEPHEN DAVIDSON BECHTEL,

Cross Examination (continued)

Mr. Tinning: Q. Mr. Bechtel, we were discussing the conversation which you say occurred on November 19, 1935, at the noon adjournment. You stated you fixed the date of that meeting by the fact on the following day—you refreshed your recollection by the fact that on the following day you sent Mr. Hindmarsh some kind of a notice or instruction to proceed with the preparation of some paper. What document was it that you instructed Mr. Hindmarsh to prepare?

A. A revised construction schedule.

Q. In that discussion, was it true that there was some talk respecting operating, or authority to operate, with 48 hour week men on reopening of the drift excavation in the upgrade tunnel?

A. I don't recollect it.

Q. You do not recall it. As a matter of fact, at this time,—November 19, 1935,—you had practically completed the recovery of the tunnel from the slides and placing the concrete, and were at that time preparing to proceed with the further driving of the tunnel? A. That is right.

Q. So far as you are able to recollect, there was no discussion as to the time or how long the men should work who were to work on the driving of the

(Testimony of Stephen Davidson Bechtel.)

tunnels henceforth when you resumed that work; you don't recollect that?

A. I don't recollect that.

Q. At that time, you asked Mr. Boggs something about the extension of time, and stated it appeared necessary that you apply for an extension of time; is that correct?

A. I don't recall it coming up in that way.

Q. At that time and in your presence, did you hear Mr. Delancey Smith state to Mr. Boggs that, during the last spring,—that would be the spring of 1935,—that Mr. Boggs stated the application for an [1234] extension of time was premature?

A. I don't recall that.

Q. Do you recall Mr. Delancey Smith said that Mr. Boggs had said at that time,—referring to the spring of 1935,—that an extension might not be necessary? A. I do not recall that.

Q. Do you recall that Mr. Smith then asked Mr. Boggs if he, Mr. Boggs, still was of the same opinion? A. I don't recall that.

Q. And then do you remember that Mr. Boggs stated in that conversation, to the persons present, that he still considered that an application for an extension of time on this date, November 19, 1935, would be premature; and, further, that, if you did make such an application, it must be approved by the PWA?

A. No; I have no such recollection.

(Testimony of Stephen Davidson Bechtel.)

Q. Do you recollect then Mr. Smith stated to Mr. Boggs that Mr. Boggs' recommendation would probably be followed by the PWA, and Mr. Smith stated to Mr. Boggs that, in view of an erroneous geology, unforeseen difficulties encountered by the Contractor, that the request might reasonably be granted? Do you recall Mr. Smith saying that to Mr. Boggs? A. No.

Q. And thereafter Mr. Boggs replied that such matters had already been discussed and acted upon, and that his recommendation was still no; do you recall that?

A. Not in any way at all. I do not believe that took place; but I have no recollection as to it.

Q. What do you think took place?

A. Well, I told you the other day.

Q. Will you tell us again?

A. Yes. This discussion was started as a general one, and developed into a discussion of the future construction schedule, as a matter of preparing the future construction schedule; and Hindmarsh was to make a future construction schedule up, which he said would take until about the first of the [1235] year to be able to, with reasonable accuracy, forecast the future schedule; and Boggs said that that would be fine—words to that effect; that when that was ready he would be glad to go over it with Mr. Hindmarsh and agree with him as to the correctness or reasonableness of the construction schedule; and would also review an application for extension of

(Testimony of Stephen Davidson Bechtel.)

time as to the time, the period of the extension of time that Mr. Hindmarsh would apply for, or the Company would apply for.

Q. Is that all of the conversation?

A. No; that the District's objections to our application up to then were not necessarily a question of our right to the extension, but they did not want to confuse the more major points that were of controversy, by discussing major controversies which existed between the District and ourselves.

Q. Was that the substance of the conversation?

A. The substance; that was the substance of the conversation.

Q. You took notes of that conversation?

A. No.

Q. Were any notes taken of that conversation?

A. I cannot answer that.

Q. What was Mr. Delancey Smith doing there?

A. Delancey Smith had been there; was advising us very closely; spent a great deal of time with me, in helping me; and I was relying upon him, and working with him for some months prior to that.

Q. What was he doing there on the occasion of the 19th of November, 1935?

A. Well, I have no recollection as to the particular purpose of it, Mr. Tinning.

Q. Pardon me.

A. It is not important. I was going to observe that, from time to time, he and I drove to the

(Testimony of Stephen Davidson Bechtel.)

ground. I would drive by his home and pick him up in the morning, and we would go out over the job, and then go on to San Francisco together. [1236]

Q. At that time and place, after Mr. Boggs had made his statement with respect to his recommendations for an extension, did you hear Mr. Smith say to Mr. Boggs that he realized that his recommendation,—Mr. Bogg's recommendation—that no extension be given, was Mr. Bogg's technical position; but that it might be possible to change that decision? Did you hear that?

A. I have no recollection.

Q. Would you say it was not said?

A. No; I have no recollection of that coming up at all. I am of the opinion it was not said; but it may have been.

Q. Do you recall, in that conversation, that Mr. Boggs said, in substance and effect, that he had considered the matter from all possible viewpoints, and, as he knew of no valid reason for an extension of time that had been suggested, the answer to the request would still be "No"?

A. No; I don't think he said that.

Q. Following that, did you then suggest to Mr. Boggs that he co-operate with you,—Six Companies,—and think up some good reason for an extension of time?

A. No; I have no recollection of that. I do recall that Mr. Boggs said that the application for exten-

(Testimony of Stephen Davidson Bechtel.)

sion of time should be on uncontroversial grounds, if possible.

Q. Do you remember Mr. Boggs saying to you, following your suggestion with respect to the reasons for an extension, that he thought there were brains enough in the Six Companies organization to prepare their own extension of time without his help?

A. No. That was not the spirit which Mr. Boggs discussed—or the spirit in which we were discussing it with him.

Q. Was it said by him?

A. I do not think it was said.

Q. Did Mr. Boggs ever suggest a new schedule of operations was in order, and that he would probably write and request a new schedule of progress?

A. Not just as you say it; I believe Mr. Boggs suggested or asked that we prepare a new construction schedule. [1237]

Q. Then did you state to him that you would prepare one and file one about January 1st?

A. I did not say that. I think that Hindmarsh, with whom he was discussing the matter of the future operations, said he would prepare it and have it ready about that time.

Q. And that you would accompany the schedule with a request for an extension of time; did you say that?

A. No. I don't remember any such discussion on any such points as that. There was a discussion,

(Testimony of Stephen Davidson Bechtel.)

as I recall it—it was between Mr. Boggs and Mr. Hindmarsh—that, at some time after the revised construction schedule was prepared and while they were considering the revised construction schedule, they would also prepare or go over together a draft of an application for extension of time, so it would be in form; and Mr. Boggs could recommend and approve it—recommend an approval that would go forward with his recommendation and approval.

Q. Then did you state to Mr. Boggs, following the discussion of the schedule and the proposed additional request for an extension of time, that you expected to start the drift work on the upgrade,—that would be the south tunnel,—in the next few days, to connect with the east portal drift?

A. I have no such recollection.

Q. Would you say you did not say that?

A. I don't think I said it. I won't say I did not say it; but I don't think I would say it, for the reason the matter of construction details and construction procedure had been carried on primarily between Mr. Boggs and Mr. Hindmarsh.

Q. Then did you state that, following the commencement of the work in the south tunnel, you would propose to take up the removal of the debris in the north tunnel that remained there, and then start driving your rings in both tunnels?

A. I don't recall that.

Q. Did you, in that conversation, advise Mr. Boggs that Mr. Hindmarsh was in charge of the

(Testimony of Stephen Davidson Bechtel.)

tunnel work, and to address all communications [1238] on the tunnel work to him?

A. I don't recall that.

Q. That Mr. Price was still project manager, but would be absent from the work from time to time? A. I don't recall that.

Q. Do you recall that Mr. Boggs then requested you to write him a letter authorizing any change in the manner in which communications were to be addressed by him, as District Engineer, from the District to the employees of the Six Companies?

A. I don't recall that. He may have such a letter, but I don't recall it.

Q. You did write such a letter the next day, didn't you?

A. I don't recall whether I did or not. It is probably in these numerous letters that have been introduced here.

Q. But you do not have any recollection?

A. I don't recall it at this moment; no.

Q. Although you recollect the conference, or the conversation, with Mr. Boggs on November 19th, by the fact on the day following you wrote a memorandum to Mr. Hindmarsh with respect to a schedule? A. That is right.

Q. Following this, there was some discussion, about details of construction, between Mr. Boggs and Mr. Hindmarsh, in which Mr. Boggs asked Mr. Hindmarsh to take up with Mr. Gelston, the District Resident Engineer—Do you remember that?

A. No.

Q. Do you remember that, following this, Mr. Boggs drove you and Mr. Smith to 40th and Broadway?

A. I don't recall that. He may have; but I don't recall it.

Q. Do you remember, as you drove in, in the car, that Mr. Boggs asked you what status Mr. O. W. Peterson, who was one of your consulting engineers who had been acting in the recovery work in the tunnel, would continue to have with Six Companies?

A. I don't recall, at this time; but I am just thinking here, now, at some time a discussion something to that effect took place. [1239]

Q. But you have no distinct recollection whether it was on the 19th of November or at some other time? A. No.

Q. You have no distinct recollection of whether Mr. Boggs took you in from the work to 40th and Broadway where you took the Key Route train to San Francisco? A. No.

Q. With Mr. Smith? A. No.

Mr. Tinning: No further cross-examination.

Redirect Examination

Mr. Marrin: Q. Mr. Bechtel, where were the west portal buildings located, with reference to the portals of the tunnel?

A. They were located in a deep cut immediately adjacent to the west portal of the tunnels.

Q. Was there any necessity for getting those buildings constructed prior to the commencement of the construction on the tunnels?

(Testimony of Stephen Davidson Bechtel.)

A. Yes; the portal buildings were, in fact, the portals of the tunnel; and it was necessary to have them in shape to hold the portals of the tunnel as early as possible, particularly in view of the fact that the slopes on either side of this deep cut had slid, and there were additional slides, particularly as winter came on, and it was necessary to make every effort possible to rush the portal buildings and to backfill the portal building structures, in order to stop any possible cave-in of the slopes or sides of the deep cut, and also to stop the possibility of sloughing or sliding of the portion of the cut immediately over the top of the tunnels themselves; that was a hazardous situation, and it was recognized, and we did everything possible to rush those tunnels.

Q. The buildings, you mean?

A. The buildings.

Q. Could access be gained to the west portal of the tunnel until those buildings were partially constructed?

A. No; the placing of the building and the crossmembers were directly in front of [1240] and had to be gone through or over, in approaching the drifts to the tunnels proper; and it was necessary to have those portions out of the way so we could have access to that other part.

Q. It did not make any difference whether that was done by the Six Companies or not, or a subcontractor?

(Testimony of Stephen Davidson Bechtel.)

A. It did not make a bit of difference; it is one of the construction problems of the portal buildings,—the construction itself; and whether it was done by subcontractors or Six Companies of California or anybody else it did not make a bit of difference; the work was carried on as a necessary part of the construction itself, in order to gain access to the tunnels and to carry the project, as a whole, forward as fast as possible.

Q. On your cross-examination, reference was made to the fact that the work on the west portal was shut down from August 3rd to August 23rd, and also that the west portal buildings were subcontracted. Did the fact that any buildings were subcontracted cause the shutdown?

A. It affected the shutdown in no way at all. The work was carried on by the subcontractors in anticipation of the tunnel approaches and for the portal buildings, and was carried on just as if it was done by our own operations.

Q. The shutdown was due to the nature of the ground? A. Yes.

Q. Mr. Bechtel, I show you Defendant's Exhibit "T",—which is a letter dated October 18, 1934, signed by Six Companies of California, apparently by yourself as president, addressed to the Honorable T. A. Reardon. You have seen that; it was read during your cross-examination? A. Yes.

Q. At the date of that letter, Mr. Bechtel, how

(Testimony of Stephen Davidson Bechtel.)

far had the excavation proceeded in the bottom drift on the west portal of the tunnel?

A. The bottom drift of the south tunnel had been driven—both of them had been driven in to their full depth of approximately 92 feet, and had been driven all that distance through very heavy and [1241] very bad ground; and, when we stopped, or ended those drifts, they were still in this very heavy ground.

Q. How about the north tunnel?

A. The north tunnel bottom drifts had been driven in their full distance, and these bottom drifts were driven approximately 110 feet, and also ended in soft, bad, heavy ground.

Q. So, at the date of this letter, you knew the nature of the ground which had been encountered in the 92 feet in the south tunnel and the 110 feet in the north tunnel?

A. I not only knew that, but it appeared we did not know how far or how much additional bad ground we would have; but we knew we had had bad ground in both those tunnels up to that time, through the entire length of the work on both tunnels.

Q. You testified, on your cross-examination, that, at the time excavation was stopped in the tunnels on August 21, 1935, there were approximately 900 to 1000 feet in each tunnel standing open under timber. How long had these portions of the tunnels been standing open under timber at that time?

(Testimony of Stephen Davidson Bechtel.)

A. Well, if I recollect, the question was to effect that the portion of the tunnel driven in January had been open some six months, and the portion driven in December had been standing some seven months; but that does not give the true reflection,—the true situation,—because they were standing a length of time dependent upon their position in the tunnel; those farthest from the portal had only been up a few days, and the majority of them had only been placed—the average length of time was probably less than three months; in other words, the average of the timber in the tunnels had probably been standing—were standing probably on an average of less than three months.

Q. In other words, as the tunnels were excavated, from about December up to August 21st; is that correct—— A. Yes.

Q. And they were timbered as they were excavated? A. Yes. [1242] Immediately after.

Q. And the timbering toward the face of the tunnel had only been in a short time?

A. Well, a few days up to the time of—— Probably an average of less than three months.

Q. Mr. Bechtel, I refer you to Plaintiff's Exhibit No. 47,—a letter addressed by Six Companies of California, by yourself as president, to the board of directors of Joint Highway District No. 13——

Mr. Wittschen: Give the date, please, Mr. Marrin.

Mr. Marrin: Q. —dated July 26, 1935. I will

simply read the last paragraph. The letter has been read in evidence before—I think it has all been read in evidence, and I simply want to draw your attention to the last paragraph:

"Within the past three months, Mr. Boggs, your chief engineer, has advised the writer of this letter that the delay in the progress of the work was beyond the control of the contractor and was in no manner our fault, and has stated we have a proper ground to request an extension of time, but that he would not approve such an application at this time because it might later develop that the extension of time would be unnecessary. He has made substantially the same statement to Mr. T. M. Price within the last sixty days and has likewise made substantially similar statements to Mr. DeLancey Smith. Under the circumstances, the grounds assigned in your letter of June 4th for denying the application are not in accord with the facts or with the opinion of your engineer, and therefore should be withdrawn, even though action on the application for an extension is deferred at this time.

"We, therefore, write this letter to protest against the denial of the extension for the reasons given in your letter, and to reaffirm the application made by our letter of June 10th and our right to an extension." [1243]

Did you ever receive a reply to that letter?

A. To the best of my knowledge, we never did.

(Testimony of Stephen Davidson Bechtel.)

However, Mr. Marrin, is it not correct that that refers to a letter there on June 4th?

Mr. Marrin: I think there was a mistake in your copying?

Mr. Tinning: No; there is no mistake.

Mr. Marrin: There may be a mistake in the original letter.

Mr. Tinning: I think what you refer—what you were referring to was a letter—— There was a mistake in the original letter, and we checked that.

Mr. Marrin: Yes.

Q. Well, I asked you whether you had received a reply to that letter, and you stated to the best of your recollection you had not?

A. That is correct; to the best of my recollection, I did not.

Mr. Marrin: No further questions.

Recross Examination

Mr. Tinning: Q. Mr. Bechtel, when you said the average length of time the timbers had stood in the tunnels, after installation and before concreting, was three months, you are taking the entire stretch of the tunnels excavated and standing with timber, taking an average of the whole, approximately 2000 feet or 1800 feet,—whatever the distance was?

A. I am expressing an approximation.

Q. Some of the timbers just above the excavated face where you were setting out the timbers had been placed that day?

A. That is correct.

(Testimony of Stephen Davidson Bechtel.)

Q. And some of them had been placed, furthest toward the west, had been placed there at the time the tunnel was excavated in either December or January? A. Yes.

Q. And what took place at Station 114 in the north tunnel before the slide occurred on the 28th of August was that your employees were [1244] resetting timbers where you had excavated on the 20th of February? A. I don't recall the date.

Q. If that was the date, that would be approximately 6 months before the letter of August 23rd?

A. Yes, if the dates you speak of are correct, that would make approximately 6 months.

Q. You have not looked up, since you testified, to check up on it?

A. I have never looked it up.

Q. With respect to your testimony regarding Plaintiff's Exhibit No. 47, in which you said that Mr. Boggs had told you and other people that he would grant you an extension of time, on the same day you wrote a letter dated July 26, 1935, in which you stated that if you did not have a reply—Plaintiff's Exhibit No. 57 is the letter that I am referring to—You will remember, Mr. Bechtel—I don't propose to try to confuse you; I am trying to get something cleared— You wrote two letters on July 26th to the Board of Directors,—one of them is your Plaintiff's Exhibit No. 47, which was with respect to the extension of time; and the other was your letter of same date, Plaintiff's Exhibit No. 57, in which you delivered an ultimatum to the District

(Testimony of Stephen Davidson Bechtel.)

if they did not agree to arbitration and answer you by the 7th of August, that you were going to cease work; and we did not answer either letter, did we?

Mr. Marrin: Mr. Tinning, that was arbitration merely on the lines and grades, wasn't it?

Mr. Tinning: Yes; but we had an ultimatum. I will read you——

A. I think you are referring to a separate letter.

Q. Of the same date?

A. Yes; that may be correct.

Q. Written by you on the same day; which states, in the last paragraph—or the last two paragraphs, reading from page 3, Exhibit 57:

> "In the event that you are unwilling to submit the matter to arbitration, we will expect to immediately commence such legal proceedings as may be necessary or proper to determine our rights in the matter. [1245]
>
> "In order that a speedy settlement may be reached, we ask that you reply to this letter by August 7, 1935. If we do not receive an affirmative answer by that time, we will consider that you do not care to arbitrate the matter and commence such legal proceedings as may be proper, as above suggested."

You did not commence any legal proceedings?

A. No; to the best of my knowledge, we did not. However, we did start, or continue, our endeavor to negotiate with Boggs, trying to work this out on an

(Testimony of Stephen Davidson Bechtel.)

amicable, reasonable, practical basis; and we continued, after that, up to May, 1936.

Q. Is it your conclusion, then, from the correspondence, that you have heard read while you have been sitting here, that you continued in an amicable manner to try to work this matter out?

A. We continued for a long, long time; and we continued through 1934; we continued through 1935; and we continued until 1936, up to the time we were driven from the job.

Q. You were driven from the job at 10:45 p. m. —let me finish—— When you were driven from the job at 10:45 p. m., on Saturday night, June 13th, when you telephoned you were quitting work?

A. No; that was not the date we were driven from the job. We were driven from the job when you people broke faith and when you started extracting penalties from monies that were reasonably due us.

Q. And you negotiated right up to June 13, 1936?

A. I do not think I refer to June, Mr. Tinning. I think I referred up to May.

Q. You were not driven from the job until the 13th of June, 1936?

A. Well, you may be right about the date, Mr. Tinning.

Q. We will now go back to the subject we were discussing,—the letters of July 26, 1935. You had no reply?

A. That is as I understand it. [1246]

Q. And you continued to work? A. Yes.

Mr. Tinning: Thank you. That is all.

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Vol. V

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

SIX COMPANIES OF CALIFORNIA, HARTFORD ACCIDENT AND INDEMNITY COMPANY, ET AL., PETITIONERS,

vs.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR CERTIORARI FILED JULY 22, 1940.

CERTIORARI GRANTED OCTOBER 14, 1940.

No. 9113

United States

Circuit Court of Appeals

For the Ninth Circuit.

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

Transcript of Record

In Eight Volumes

VOLUME V

Pages 1471 to 1985

Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

PARKER PRINTING COMPANY, 545 SANSOME STREET, SAN FRANCISCO

THOMAS MOORE PRICE,

called for the plaintiff; sworn.

Direct Examination

Mr. Marrin: Q. What is your occupation, Mr. Price?

A. I am a civil engineer, by training; but I have always been working with contractors as a superintendent.

Q. Will you state what your education and experience in the contracting business is?

A. I finished college; I graduated in 1912 from the University of North Carolina, getting a literary degree. I taught school for a year in order to pay my tuition; and then I went back to college and took a degree in civil engineering, finishing in 1915. I worked for a contracting firm named Robert G. Lassiter and Company, principally in North Carolina, but on the East Coast for approximately 3½ years. This firm was engaged in general contracting, building of cantonments during the time of the War, and other general contracting work,—no large job; not much larger than a million dollars. At the beginning of 1919, I came West, and—to Seattle, and secured a job with the Kaiser Paving Company in Seattle,—a job as a material clerk; and a few months after that, I was made a superintendent of their work—various jobs, from time to time; I stayed with that company until 1931, in general contract work on the Pacific Coast, largely paving, aggregate production for paving, some earth dams, some

(Testimony of Thomas Moore Price.)

industrial plants. In 1931, I was loaned by Mr. Kaiser to the Six Companies, Incorporated, and I went to Boulder Dam for 4 years; at Boulder Dam, I was in direct charge of the aggregate production and the railroad operations, consisting of moving the aggregate and moving the muck on the job from the dam excavation and from the tunnel out to the disposal point. [1247] This work, during the 4 years I was there, cost approximately ten million dollars.

On September 20th—on or about September 20, 1934, I was ordered to report to the Six Companies of California on the Broadway Tunnel project in Oakland.

Q. What was your position with Six Companies of California?

A. I was called "project manager."

Q. What were the duties of that position?

A. The duties of the position were to handle the business end of the job.

Q. How long did you remain in that position?

A. Why, I am still in it, so far as I know. I stayed with the job until we rescinded the job in June, 1936. Since that date, I was occupied for the first year in looking after the Six Companies of California equipment and tools and other interests on the job; and, since that time, I have been largely engaged in making preparations for this litigation.

Q. After you were employed by Six Companies of California, in September—on September 20, 1934, were you at the site of work daily?

(Testimony of Thomas Moore Price.)

A. Yes, I was, practically every day, during the entire time. I may have been absent two or three days during the period from September, 1934, to approximately a year later. I was not absent over three or four days—I don't think.

Q. Were you frequently in the tunnels while they were being excavated? A. Yes, I was.

Q. You were familiar with the work that was going on in the tunnels?

A. Yes, I thought I was quite familiar with it.

Q. During all the time from September, 1934, up until June 13, 1936?

A. I was quite familiar with the work until the fall of 1935, because I spent approximately 12 to 14 hours per day on the job. After September, 1935, I did not spend as much time on the job. I tried to get out once a day, but some days I was out of town; I was out of town some portion of the time between that time and June, 1936; [1248] but I was fairly familiar with the work most of the time.

Q. What was the status of the work at the time you were employed by Six Companies of California on September 20, 1934?

A. Do you mean the tunnel work or all the work?

Q. Yes, the tunnel work.

A. When I arrived at the job, I found the west portal approach and building excavations largely completed; the west portal ventilating building was constructed approximately up to the first story.—I would say, 35 or 40 feet high; the bottom drifts had been driven quite a way into the hill; some of the

(Testimony of Thomas Moore Price.)

other drifts above had been started; some of the circumferential drifts above the bottom drifts, and the plant in general pretty well along; the concrete plant; the bunkers were practically built; the unloading point for the aggregates was generally constructed, with the exception of some details; the timber plant was in shape, and functioning; the blacksmith shop and the compressor shop, and so forth, were all constructed.

At the east portal, very little work had been done, with the exception of some excavating for the portal buildings—not a great deal.

Q. Well, the tunnel work had been started at that time?

A. The drifts had been started at the west portal.

Mr. Marrin: May I have Exhibits "DD", "EE", "FF", "GG"?

Q. Mr. Price, I refer you to Defendant's Exhibits "DD", "EE", "FF", and "GG," which are an exchange of correspondence between you and Mr. Boggs, commencing on January 9, 1935, and running through to January 24, 1935, with reference to the shutting down of work on the outside buildings. I think you were in court yesterday, when you heard those letters read? A. Yes, I was.

Q. Exhibit "DD," the letter of January 9, 1935, states, in part:

> "In confirmation of our conversation of January 5th with respect to the postponement of work on certain structures you are [1249] advised as follows:——"

(Testimony of Thomas Moore Price.)

Then, that refers to a conversation which you had with Mr. Boggs? A. Yes.

Q. That was held on January 5, 1935?

A. I presume it was; I have no memory of the date, other than the letter.

Q. Were you and Mr. Boggs the only ones present at the conversation?

A. I don't recall. I recall talking to Mr. Boggs.

Q. Do you recall what was said at the time?

A. Mr. Boggs said he would desire us to stop the work on the structures,—the outside structures, principally, as I recall it, the Golden Gate Bridge excavation, the Landvale Viaduct excavation and the upper walls at the west portal building, because of weather conditions.

Q. In your letter of January 18, 1935, to Mr. Boggs,—which is Defendant's Exhibit "EE"——

The Court: Pardon me. What letter is this?

Mr. Marrin: January 9, 1935.

The Court: What is the substance of that letter, so I may refresh my memory on it?

Mr. Marrin: Would you like me to read the letter, your Honor?

The Court: Yes.

Mr. Marrin: This is a letter dated January 9, 1935:

(Testimony of Thomas Moore Price.)

"File: Broadway Tunnel Schedule
"Six Companies of California,
Field Office, Post Office Box 120,
Berkeley, California.

Attention of Mr. T. M. Price, Project Manager.

"Dear Sir:

"In confirmation of our conversation of January 5 with respect to postponement of work on certain structures, you are advised as follows:

"Conditions are unfavorable for work on the Golden Gate Overhead Structure due to the fact that the footing excavations which were opened up more than a month ago have been damaged by exposure to heavy rainfall. It will not be feasible to proceed with the [1250] completion of these footings until the rainy season is over and the damage can be satisfactorily repaired.

"It is not advisable to start footing excavations on the Landvale Overhead and Viaduct structures until the rainy season is over. Conditions similar to those now existing on the Golden Gate Overhead Structure will undoubtedly result if these excavations were made and exposed to the rainy weather which may reasonably be anticipated.

"The right-hand Service Road walls at the West Portal southerly from the South buttress of the Portal Buildings cannot be constructed until the fills which have been necessary on ac-

(Testimony of Thomas Moore Price.)

count of excessive excavation shall have been thoroughly consolidated and no longer subject to settlement.

"Reference is made to Section 6, Subsection (r) 'Temporary Suspension of Work' of the specifications, and you are directed that work on the above structures shall not proceed until conditions are considered favorable by the District Engineer. Such postponement shall not constitute a basis for any extension of time for the completion of the contract.

"It is noted that the schedule submitted by you in August, 1934, contemplated the completion of these units by December 1, 1934; if such progress had been made, the conditions now existing with respect to the Golden Gate and Landvale structures could probably have been avoided.

"Very truly yours,
"(Signed) WALLACE B. BOGGS,
District Engineer."

Mr. Marrin: Q. Then, on January 18, 1935, his reply letter to Mr. Boggs, which reads as follows:

"Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California. [1251]

"Dear Sir:

"We wish to acknowledge your letter of January 9th, directing us to suspend operations on

(Testimony of Thomas Moore Price.)

certain structures until conditions are considered favorable by the District Engineer.

"This is entirely satisfactory with us. However, we note that you state that such postponement shall not constitute a basis for any extension of time for the completion of the contract. We would like to ask your reconsideration of this, in accordance with Paragraph C, Section 4 of the Specifications, wherein it is stated that if stormy or inclement weather unavoidably delays the work such time shall be added to the aforesaid time for completion.

"We are not certain that we will need such an extension. However, the grading of the road is being held up subject to completion of the structures and if the grading is delayed in the summer of 1935 to a date that will make it impractical to lay the oil surfacing, it might be advisable to postpone such surfacing until the spring of 1936.

"Under such a condition, we believe that a request for extension of time on this account would be in order.

"Yours very truly,

"SIX COMPANIES OF CALIFORNIA,

"By (Signed) T. M. PRICE,

Project Manager."

Q. Referring to the last statement there in that letter,—that it will be impractical to lay the oil sur-

(Testimony of Thomas Moore Price.)

facing, and if the grading is delayed in the summer of 1935 to a point that will make it impractical to lay the oil surfacing, it might be advisable to postpone such surfacing until the spring of 1936,—will you state why it might be advisable to postpone this surfacing, or the laying of the paving, if it were delayed until the spring of 1936?

A. The fact that [1252] our contract time ended on May 24th was just a short period after the rainy season, and it would be impractical; and the Engineer had stated he did not want paving laid on wet subgrade; in fact, the specifications, I believe, provide for a certain temperature,—a certain minimum temperature during which it could be laid. I did not seriously regard the delay at the present time, but I could foresee a condition where it might be affected if the structure were not complete, if we were not able to start on the job soon enough in the spring of 1935, and finish and get the grade down, where we would be delayed in the spring of 1936; and the letter expresses my thoughts there.

Q. In other words, if the pavement could not be down in the summer of 1935——

A. It would have to be postponed until 1936,—the summer.

Q. After the rainy season?

A. That was my understanding.

Q. Could the fills and cuts be completed before the tunnel was excavated?

A. A portion of the fills could not be completed.

(Testimony of Thomas Moore Price.)

Q. Will you state why?

A. The fills immediately adjacent to the west portal were contemplated and designed to be constructed of the material which was to be excavated from the tunnel.

Q. If that material were not excavated prior to the rainy season of 1935 and 1936, the fills could not be completed until after the rainy season?

A. That is right. Naturally, the fills could not be completed until we got the excavation out of the tunnel; and we were not sure as to the excavation we would get from the tunnel,—whether it would be acceptable or not.

Q. And the paving could not be laid until after the rainy season was over?

A. On that portion, it could not be laid. There was another reason, too, that I thought might interfere; and that was the fact that some of the cuts on the west approach road showed some [1253] indication of sliding, even at that early date. In fact, some of the drifts, some of the fills, had slid, as well as the cuts.

Q. Following that exchange of letters between you and Mr. Boggs, Mr. Price, did you have any further conversation with Mr. Boggs, respecting an extension of time?

A. Yes, I had a conversation—well, I heard a conversation.

Q. You said "Yes." Will you state, according to your best recollection, the first time after that that you had a conversation with Mr. Boggs?

(Testimony of Thomas Moore Price.)

Mr. Wittschen: This only calls for the time.

Mr. Marrin: Yes.

The Witness: A. To the best of my memory, it was about the middle of May, 1935.

Mr. Marrin: Q. Will you state who was present?

A. Mr. S. D. Bechtel and Mr. Boggs and myself.

Q. Will you state what was said at that time?

Mr. Wittschen: Objected to as irrelevant, incompetent and immaterial, and not binding on the District.

Mr. Marrin: This is on the subject, your Honor, which has already been gone into a number of times, and on which we argued the objection before. It goes to show the state of mind of the District Engineer, and to prove, in his judgment, we were entitled to an extension of time, despite the fact the District formally rejected the request.

The Court: As a matter of law, assuming that he was in that state of mind, and assuming that conversation which you develop would indicate he led them to believe that they were going to get an extension of time, just what would that result in?

Mr. Marrin: Well, if your Honor please, if we can show in this case, as a matter of law, that, in the judgment of the District [1254] Engineer, we were entitled to an extension of time, and if the District did not grant the extension of time, then their action was wrongful and in violation of the contract. While engineers and architects are given

(Testimony of Thomas Moore Price.)

rather wide power under these contracts, the cases are quite clear that they must exercise those powers fairly as arbitrators, and act for both parties, and they must not act capriciously or fraudulently or in the interests of one party as against the other, and that they must exercise their own independent judgment, and must not act under the domination or influence of their employer, the owner, or of anyone connected with the owner.

Now, it is our purpose to show here that this District Engineer either did not exercise any judgment in the matter,—and consequently his action is void; or, if he did exercise or make any decision here, he made it absolutely contrary to his own opinion and belief as to the circumstances. Now, we can show, if your Honor please—and we would like to submit authorities on that question, which we have not submitted yet—that, if that situation exists, his denial is of no effect and may be set aside; and that we are then entitled to the judgment of the Court as to whether or not, under the circumstances, we were entitled to the extension of time.

Mr. Wittschen: The cases hold that the opinion of the engineer cannot be set aside for mistake or for anything else except fraud and oppression, or it may be such a gross mistake as would amount to fraud and oppression, for instance, if he utterly misconceived the quantities of material, we will say, that should go into a certain place, to such an extent that it would amount to fraud.

In this case, however, the extensions of time were

(Testimony of Thomas Moore Price.)

not granted by the Engineer. They were granted by the Board of Directors of the District, on proper application. That application was made. The Contractor was advised by the Engineer that he did not think they [1255] were entitled to it. The two other exhibits, which counsel called for but which were not read, will show the witness on the stand said he did not intend that as an application for extension; he was simply making it a matter of record in case he wanted time in the future, and that it referred to the outside work; the tunnel was the main work; and they had plenty of time, after the tunnel was started, to do that outside work, or to do the outside work while the tunnel was being completed; but, as a legal matter, strictly under the specifications, the Engineer had nothing to do with it; it was up to the Board of Directors.

The Court: The Court is prepared to rule. I will give counsel a record.

Mr. Wittschen: Submitted.

The Court: I will allow it subject to a motion to strike and over the objection of counsel.

Mr. Wittschen: Exception.

Mr. Marrin: Q. Will you state what was said at that time, Mr. Price?

A. Mr. Boggs and Mr. Bechtel were talking——

The Court: Q. This was what date?

A. It was approximately the middle of May, your Honor, 1935. I cannot recall the date exactly.

Mr. Wittschen: Wait just a minute. You have these confused, Mr. Marrin. My objection might

(Testimony of Thomas Moore Price.)

not be—there were two other letters that you are omitting. You read the letter here in January, and now you are jumping to May? Do you mean that?

Mr. Marrin: That is right, Mr. Wittschen. I am not claiming these letters here—I am just bringing them up in sequence.

The Court: Then, as I understand it, it was a conversation between the witness on the stand and the Engineer and Mr. Bechtel?

Mr. Wittschen: Yes; subsequent to these letters; but the way counsel phrased the question, I was calling attention to the fact [1256] there were two other letters in between, that he had not brought up on the same subject.

Mr. Marrin: Those were read yesterday. I did not read them today.

Mr. Wittschen: Very well.

Mr. Marrin: Q. Will you answer the question?

A. May I ask that the question be read.

The Court: Read the question, Mr. Reporter.

(Record read.)

The Witness: A. I came upon Mr. Bechtel and Mr. Boggs, discussing the job conditions, on the office steps,—the job office at the west portal,—and listened to the conversation for approximately 15 or 20 minutes, to the best of my recollection. The substance of the conversation, to the best of my recollection, was about the job conditions in general; and, in the discussion, Mr. Bechtel brought up the point of the difficult ground conditions; and I remember particularly I asked Mr. Boggs, myself, if

(Testimony of Thomas Moore Price.)

he did not consider that those different ground conditions warranted an extension of time; he replied that he considered the ground conditions different from those anticipated and that they did warrant an extension of time, but that he would not be in favor of granting an extension of time at this time, but would recommend that we wait until the proper time, in his opinion,—which would be near the end of the job,—and then make application for the extension. He also stated that we did not know, at that time, whether or not we would need any additional extension of time, and how much we would need, if we did need it.

Q. Is that all?

A. That is the substance of the conversation, to the best of my memory.

Q. Well, did you thereafter at any time discuss with Mr. Boggs the [1257] question of an extension of time?

A. Yes. To my best recollection, I talked with him a few moments in the early part of—about the first week in December, 1935, when I saw him at the west portal.

Q. Who was present at the time of that conversation?

A. I do not recall anyone being present; but I may be mistaken in that regard.

Q. Well, other than you and Mr. Boggs?

A. Other than Mr. Boggs and myself.

Q. What was said at that time?

(Testimony of Thomas Moore Price.)

Mr. Wittschen: We make the objection heretofore stated, on all the grounds as heretofore stated.

The Court: Same ruling.

Mr. Wittschen: Exception.

The Court: It may come in subject to a motion to strike and over the objection of counsel.

Mr. Wittschen: Exception.

The Witness: A. Mr. Bechtel had requested me to help Mr. Hindmarsh prepare data for another application for extension of time and if possible to prepare the data in a way which would not be controversial and would be sure of that time——

Mr. Wittschen: He is asked for a conversation.

Mr. Marrin: Yes.

Q. Just confine it to what you said.

A. I asked Mr. Boggs if he did not consider that the paving that would be necessary in the spring of 1936 would be a legitimate cause for time extension. He stated to me that he did consider it a legitimate cause for time extension.

Q. Was that all the conversation?

A. To the best of my recollection, that is the substance of the conversation.

Q. Mr. Price, I hand you a volume here, consisting of a number of charts. Will you explain to the Court what those are?

Mr. Wittschen: I thought you were not going to introduce them [1258] as an exhibit?

Mr. Marrin: I am not going to. I simply want to explain how it is made up, and what it is. I am

(Testimony of Thomas Moore Price.)

not going to offer it in evidence at this time, except to have it marked for identification, to enable the witness to refer to it for accuracy in his testimony.

Mr. Wittschen: Very well. I thought he was going to use it as a memorandum so he could tell with more certainty and refresh his recollection, without objection to it.

Mr. Marrin: Surely; but I simply want to have the witness explain to the Court how this is made up.

The Court: Q. Did you make that up?

A. It was made up under my direction.

Q. When?

A. Recently; within the last six months.

Q. Have you checked it? A. Yes.

Mr. Marrin: I will ask that that be marked for identification.

(The charts were marked "Plaintiff's Exhibit No. 58 For Identification.")

Mr. Tinning: What do you call it, Mr. Marrin?

Mr. Marrin: That is a composite progress chart; so that we can be clear on it, I will state what it is. It was made up from the records of the Company, and it shows the progress, in some places week by week, and other places day by day, of the excavations, of the drifts; and of the tunnels; and it also shows the progress in placing the concrete in the tunnels. I believe it also shows——

Q. Does it show the timbering, Mr. Price?

A. It shows the square setting.

(Testimony of Thomas Moore Price.)

Q. It shows what steel was placed?

A. Yes.

Mr. Tinning: So we will understand it, by "square setting," you refer to the braces that were set in the tunnel after the slides?

Mr. Marrin: Yes. It is a method of timbering which will be [1259] thoroughly explained by some other witnesses. This is simply a summary of the records of the Company on the facts; and it has been prepared for the convenience of everyone in referring to these things in testimony.

Q. Is that a correct statement, Mr. Price?

A. To the best of my knowledge, it contains nothing but facts; I don't believe it will be controversial in any respect.

Q. Well, to the best of your knowledge, it is accurate?

A. Yes, it is, to the best of my recollection.

Q. Mr. Price, to what distance were the tunnels excavated before the first concrete lining was poured?

A. The south tunnel was excavated to a distance of,—the circumferential drift,—of approximately 92 feet. The north tunnel was excavated approximately in the same manner, to a distance of approximately 110 feet.

The Court: Q. You heard Mr. Larson testify, did you? A. Yes.

Q. Did he give the details of the work and the figures accurately? A. Yes, I thought he did.

(Testimony of Thomas Moore Price.)

The Court: Proceed.

Mr. Marrin: If your Honor please, I do not intend to spend any time going into the details of this with this witness.

The Court: I want to give you the widest latitude, in fact, on both sides, as I indicated at the outset. I realize how important this is to both sides; and particularly this preparation of the digest. My only thought was: if there is any dispute as to the progress, or anything in those details, then it would become important; I think it would be conceded the progress that was made and the various charts were important. That is all I had in mind. You may proceed.

Mr. Wittschen: So your Honor will be clear: our objection on that was that they started to put in, on this progress, not only what [1260] they did, but what everybody else did who finished the job.

Mr. Marrin: No; that is not true.

Mr. Wittschen: Well, that was our objection.

Mr. Tinning: This is not controversial.

Mr. Marrin: Well, it is getting controversial when you make statements of that kind.

The Court: Now, you have been getting along so well around here, I don't want to do anything——

Mr. Wittschen: Well, let me finish this before you get excited. Our objection was to certain matters that Mr. Price has in his hand; if there is going to be controversy as to where they were at a particular point,—if they say in their record they were

(Testimony of Thomas Moore Price.)

here, and if we don't agree with it, we will say "in our records you were there." But I cannot see any necessity for that particular document going in unless the objectionable matters are eliminated; and that they promised to do.

Mr. Marrin: I might say, your Honor, when this was made up, the men in the office inadvertently put in the progress of the contractors who finished and who followed the Six Companies. The other side objected to that; and, during the noon hour, I tried to blank that out in this copy, and we intend to eliminate it permanently.

The Court: Well, for the Court's information, is there any controversy in relation to the progress of this work, as to the dates and the essential things which are important here?

Mr. Tinning: I do not think so, your Honor.

The Court: They have a record, and you have a record. Are you apart in relation to your record?

Mr. Marrin: Well, I don't think we are, your Honor; but unless we get something in the evidence, we have not anything in the record on it.

The Court: I can appreciate that. [1261]

Mr. Wittschen: Haven't you got this from Mr. Larson's testimony?

Mr. Marrin: Well, Mr. Larson was only there until April 30th.

The Court: I realize that.

Mr. Wittschen: Don't you intend to follow that with your other superintendent?

(Testimony of Thomas Moore Price.)

Mr. Marrin: Yes; but I want this witness to give some testimony; and he can give it much more accurately, with this before him.

The Court: Don't be misled by what the Court may do. I don't even suggest to you how you should present your case. I want to be helpful to each side. The thing I was concerned about was the repeating of testimony on things that are not really in dispute; and the repetition of that would not be helpful to either side. That is all I had in mind. I can understand this digest is taken from the original records. They are entitled to the original records, if there is anything in dispute; so, if we get too technical here, we will be here for the rest of the summer. We will take a recess for a few minutes.

(Recess) [1262]

Mr. Marrin: Q. Mr. Price, would you state how many drifts were used in excavating the tunnel on the west portal? A. 13 in each tunnel.

Q. When was the work of excavation resumed after the concrete was placed in the lining in the west portal? On what date was the excavation resumed in the tunnel?

A. It was resumed in the north tunnel on December 5, 1934, and in the south tunnel on November 26, 1934.

Q. Will you describe just generally the method of excavation used from that time, from the resumption of excavation in these tunnels up until August 21, 1935?

(Testimony of Thomas Moore Price.)

A. I will describe the south tunnel first. The first excavation was removing the core of dirt that had been left in place after the perimeter had been concreted. This was done with a power shovel and was excavated up within approximately 35 or 40 feet of the end of the concrete section where we found it necessary to stop the excavation because the dirt sloped on about that slope, about a 40-degree slope, I would judge, which exposed the underground section of the tunnel at the end and prevented excavating any more of the core left in the concrete lining; we found it necessary therefore to leave this dirt in the tunnel, this core in the concrete section at that point and proceed with the excavation of the tunnel at the end of the concrete. This was accomplished by driving a top heading at the top of the arch at the east end of the concrete, driving it in a few feet, 35 or 40 feet, winging that out with additional drifts, and so continuing on down the sides of the tunnel, removing the core as it became necessary or as we cut the top of the tunnel, until we reached the bottom.

Q. The purpose of leaving the core was for support?

A. Leaving the core to support the ground. We had no other support east [1263] of the concrete. The timber that was put in to hold this ground was an experiment on the part of the tunnel superintendent, Mr. Whitmire, at that point, putting in solid timber, in other words, the sets touched each

(Testimony of Thomas Moore Price.)

other, skin-tight, I believe is the tunnel name for it, and they were raked or inclined toward the hill. The pressure of the dirt at the end of the concrete section seemed to be westward toward the concrete, and he and I were both of the opinion if we inclined the timbers toward that pressure and made them solid, that we could hold that ground. That ground was quite muddy, and it was very soft for approximately three-quarters of the cross section of the tunnel. The bottom quarter had some decomposed sandstone in it, some rotten sandstone. As we advanced by this system approximately 40 feet we decided, Mr. Whitmire decided, and I agreed with him, it seemed to be a good plan to change the system and start the excavation at the bottom of the tunnel, driving the drift on grade, and letting the dirt in the side walls fall down to the drift rather than start at the top, as we had to start in the excavating, as far as we could in the concrete section, let the dirt fall down through the drift and then move it out; in other words, we would start with the grade drift, excavate anyway, and excavate the material out of the drift by means of a Bagley scraper; a Bagley scraper is a bottomless bucket. it is a bucket composed of two sides and an end, and as that is dragged over the ground by a power machine the weight of the bucket tends to dig into the ground and get a load of dirt, and it deposits the load immediately where the bucket is stopped, there being no front to it, and as the bucket is

(Testimony of Thomas Moore Price.)

dragged back to get another load it leaves it at that point, and that load is dragged out of the drift. They call it a Bagley scraper. This scraper is pulled by a hoist operated by compressed air. [1264] After the bottom drifts had been excavated a reasonable distance into the hill, 40 or 50 feet into the hill, a second drift was started on top of this, and the dirt dropped into the bottom drift, where it could be pulled out by the scraper to the face and loaded by a power shovel in the same manner as the previous drift, and so on the entire tunnel had been excavated by means of this drift going from one side to the other, and then timbered for a certain distance ahead, approximately 40 or 50 feet, at which time it was felt safe to remove the core. We had to keep the concrete that distance back of the most forward timber in the arch because the core would not stand on the very steep slope, approximately 1 to 1, to prevent ground from caving away into the timber, the same as it had in the concrete section.

Q. What do you mean by a slope of 1 to 1?

A. I mean 1 foot horizontal to 1 foot vertical, about a 40 or 45 degree slope. This method was continued in the south tunnel up to the time of August 21, 1935, with a few variations. Later on we took the hoists with the Bagley scrapers and mounted them on another kind of a jumbo, which consisted of an elevated platform on wheels, so that the hoist would be in line in the drift and high up above the muck cars, so that the cars could pass underneath

(Testimony of Thomas Moore Price.)

the location of the hoist, and also so that they could move forward into the tunnel as the excavation proceeded.

Q. That was the process used on the south tunnel? A. In the south tunnel, yes.

Q. How about the north tunnel?

A. In the north tunnel Mr. Larson wanted to try the wall plate method; he found practically the same condition in the core, at the end of the concrete section as I found, with the exception, I think, there was more of the sandstone in cross section there than there was in the south tunnel, and at [1265] the end of the concrete, as I recall, the mud only extended down that tunnel approximately one-third to one-half of the way and the remainder of the tunnel being in the sandstone formation; he drove a top heading drift in the same way, because it was the only way that the ground could be started forward and advanced down to the wall plate line, I mean by "advanced," he excavated on a circumference down to the wall plate line or the spring line, which is where the tunnel curvature started. He then set wall plates in these drifts and completed his coverage with the tunnel timbering, after which he started the excavation of the core with the shovel and set the plumb posts; as he excavated the core he found it necessary, however, in the beginning, to breast-board the place where the tunnel posts were set, because the core would not stand on a slope steep enough to let him set the plumb post

(Testimony of Thomas Moore Price.)

under the wall plates for quite a distance. He continued in this manner up to 112+52, approximately —I mean he started at station 112+53 and continued up to station 115+67.

Mr. Tinning: Q. Can you give the number of feet where you make that statement and it will save time on cross-examination. How many feet was it?

A. 314 feet, approximately. I might say that in making this chart the average of the core stations is used. With an inclined core it is very difficult to spot a point and say that is exactly the advance, but an average—the station is the average of the core advance. At that point we believe the ground to be better and moved the wall plate up higher to the top of the first segment in the arch. We both believed that the angle formed by the first and second segments in the arch to be a weak place, and we believed that the wall plate at that point would strengthen that weakness or tendency to push in at the junction of those two segments. That system was continued up to station 116+81, approximately 114 feet. [1266]

Mr. Marrin: Q. Mr. Price, can you obtain from that the date you arrived at the various stations?

A. Yes, I can.

Mr. Tinning: Q. When did you arrive at 115+67?

A. 115+67 was arrived at on March 25, 1935.

Q. 116+81?

A. 116+81 was arrived at on May 1, 1935.

(Testimony of Thomas Moore Price.)

The Court: And the next 114 feet?

A. That is the 114 feet I was speaking of.

Q. The first was 300 odd feet? A. Yes.

Q. And the next was 114?

A. Yes. At that point Mr. Larson was relieved from the job, and Mr. Whitmire was placed in charge of both tunnels. We decided that the ground conditions warranted a better handling if we returned to the typical normal wall plate method by driving the wall plate at the normal elevation, which is about the spring line of the tunnel, and the wall plate was consequently lowered at that point and the excavation continued with that method up to station 117+65 on approximately June 18, 1935, a distance of 96 feet, approximately. At that point, at station 117+65, the ground conditions had become so bad that I determined we should go back to the method we were then using in the south tunnel and had been used all along, which had been developed by Mr. Whitmire, and it was proving very satisfactory as far as holding the bad ground was concerned. So we went to that system in the north tunnel at station 117+65 on June 18, and continued with that system until the operations were shut down on August 21, 1935, at station 122+11.

Q. How many feet?

A. A distance of approximately 452 feet.

Mr. Marrin: Q. When you said the operations were shut down, you mean simply driving operations, don't you?

(Testimony of Thomas Moore Price.)

A. Yes, I mean the excavation operations, they were temporarily shut down.

Q. Were the driving operations shut down on August 21, 1935? A. Yes, they were. [1267]

Q. Why were they shut down at that time, Mr. Price?

A. When the excavation of the tunnels was started in the early part of December, 1934, I believed that it would be necessary to see what could be done with the ground before any plans could be made as to what the future procedure would be with respect to both excavating the tunnels and concreting the tunnels. I believed that the normal accepted practice of excavating and concreting would be the most economical and the most practicable method that could be used, namely, by keeping the tunnel open by some means, holding it open, so that your steel forms, movable steel forms, could be used to concrete the lining with in the normal manner. I believed that the worst ground which we would encounter had possibly already been encountered at the west portal, and that the ground would improve as we drove into the hill. I knew that the geological report, by the time we had gotten a short distance into the hill, indicated a better ground, and we hoped that we could hold that ground until we arrived at the point where the better ground was indicated, if we could open approximately 200 or 300 feet of the tunnel it would be better to hold it open in what I understood and believed to be the

(Testimony of Thomas Moore Price.)

worst ground in the whole hill, that the tunnel could be driven and concreted in a normal manner, as I have described. The tunnel was driven approximately 300 feet into the hill, which was completed about April 1. By that time we had been able to get the concrete system planned so that we continued driving, because it was my opinion that the ground would soon get better, because it was supposed to be the worst ground which we would encounter. Approximately sometime in May we went out of the sandstone section of the ground and got into the cherts formation or section, which was supposed to be good ground, and continued in that for the rest of the distance until the excavation was temporarily shut down on August 21. The ground at the beginning of this formation was very [1268] bad, in fact was much worse than the sandstone formation through which we had emerged. I felt, I thought that it must be the Wildcat fault which was spoken of, and which showed in the cross section on the geological report, and considered if we could drive through 90 or 100 feet of that ground that we would then be in the cherts formation which was supposed to be self-sustaining, and we would not have any trouble with the holding of that ground at all, that our worst ground generally laid behind us. The ground up to the beginning of the cherts, with the exception of two places in the north tunnel, one at about station 114 and one at about station 116+60, and all of the ground in the south tunnel had not

(Testimony of Thomas Moore Price.)

shown enough pressure on the timbers to cause the timbers to come into the area to be concreted, with the exception of a short distance right at the end of the concrete section, the section that was concreted in 1934. In the north tunnel those two places had shown pressure immediately after the timbers had been installed, but after we went back and installed additional timbers and put some braces in the movement ceased and no more movement took place. I was quite elated, therefore, when this condition maintained itself day after day without any pressure on these timbers on that first four hundred and some feet, and felt that our troubles were over, as far as holding the ground was concerned. However, along about the end of May, 1935, we had driven into the cherts some distance, and the timbers seemed to be moving, the movement seemed to be worse along the side wall posts, and in about June, the latter part of June, 1935, the pressure became so severe that several of these posts broke under the side wall pressure and several of them became bowed, and we found some places in the tunnel where the timbers were coming in constantly, so we put up cross braces and inclined posts and tried to stop the movement as we had stopped it in the Monterey section, in [1269] the sandstone section. This condition did not improve, and progressively became worse all during July and the early part of August, and I was considerably worried about holding the tunnels open. I had advice from

(Testimony of Thomas Moore Price.)

all concerned. I consulted constantly with the tunnel superintendent and talked to Mr. Bechtel about it, and I talked to Mr. Lawler about it, who came to the job practically every week, and who was somewhat my guiding star in tunnel construction, because I felt he had had more experience than anyone else I knew, and as a result of those conferences, and the timbers continuing to press in, I recommended that the tunnel be shut down, which was done on August 21, the tunnel excavation was shut down; also the concrete program had been late; we were delayed, I felt, through no fault of my own, and we were being required to leave the concrete forms set for 72 hours before moving them, which made the progress of the concrete slow after we had got started. We had not reached good ground, we had passed through what I thought was the worst ground in the sandstone formation, we had passed through what showed in the geological report, what was supposed to be the Wildcat fault, and we just kept getting worse ground and worse ground, and had not hit the cherts that was supposed to be self-sustaining, although we were two or three hundred feet in it, according to the cross section shown on the geological report, and it seemed to me the only thing to do was to shut the excavation down until we could protect it with concrete lining.

Q. Do I understand that at the time the excavation was shut down on August 21, 1935 the trouble with the timbers was in the cherts section?

(Testimony of Thomas Moore Price.)

A. Yes, it was.

Q. Which was at the forward end of the excavation?

A. Which was the last section we had excavated. [1270]

Q. Were you having trouble with the timbers in the first part of the tunnel you had excavated?

A. No, we had not had any trouble with those timbers, except shortly after the excavation was made the timbers intruded somewhat in the concrete section, right into the section to be concreted, right at the end of the concrete section, with the exception of two places in the sandstone where, as described, the timbers had also come in, but on which the movement had stopped.

Q. Mr. Price, I show you here a tabulation which is marked "North Tunnel Excavation Progress." Will you state what that is?

A. That is the excavation progress of the core of the north tunnel in weekly periods.

Q. Does it show from station to station?

A. Yes, from station 112+53 to station 122+11.

Q. I notice at the bottom of that it states "Distance between arch concrete lining and face of core excavation as of August 28, 1935 shut-down." Should that date be August 21?

A. It should be 21.

Mr. Marrin: May I correct that on the original?

Mr. Tinning: Yes.

(Testimony of Thomas Moore Price.)

Mr. Marrin: Q. Now, this tabulation, you might just show the Court, in the first column the stations in the north tunnel.

A. The distance from that station to that station.

Mr. Wittschen: Would you like to give it an exhibit number?

Mr. Marrin: We offer that as Plaintiff's Exhibit next in order.

(The tabulation is marked "Plaintiff's Exhibit 59.")

PLAINTIFF'S EXHIBIT No. 59

NORTH TUNNEL

EXCAVATION PROGRESS

Station to Station		Period 1935		Progress
112+53	113+19	1/5	to 1/26	66
113+19	113+43	1/27	2/2	24
113+43	113+69	2/3	2/9	26
113+69	114+00	2/10	2/16	31
114+00	114+26	2/17	2/23	26
114+26	114+61	2/24	3/2	35
114+61	115+00	3/3	3/9	39
115+00	115+31	3/10	3/16	31
115+31	115+60	3/17	3/23	29
115+60	115+67	3/24	3/30	7
115+67	115+89	3/31	4/6	22
115+89	116+05	4/7	4/13	16
116+05	116+34	4/14	4/20	29
116+34	116+61	4/21	4/27	27
116+61	116+81	4/28	5/4	20

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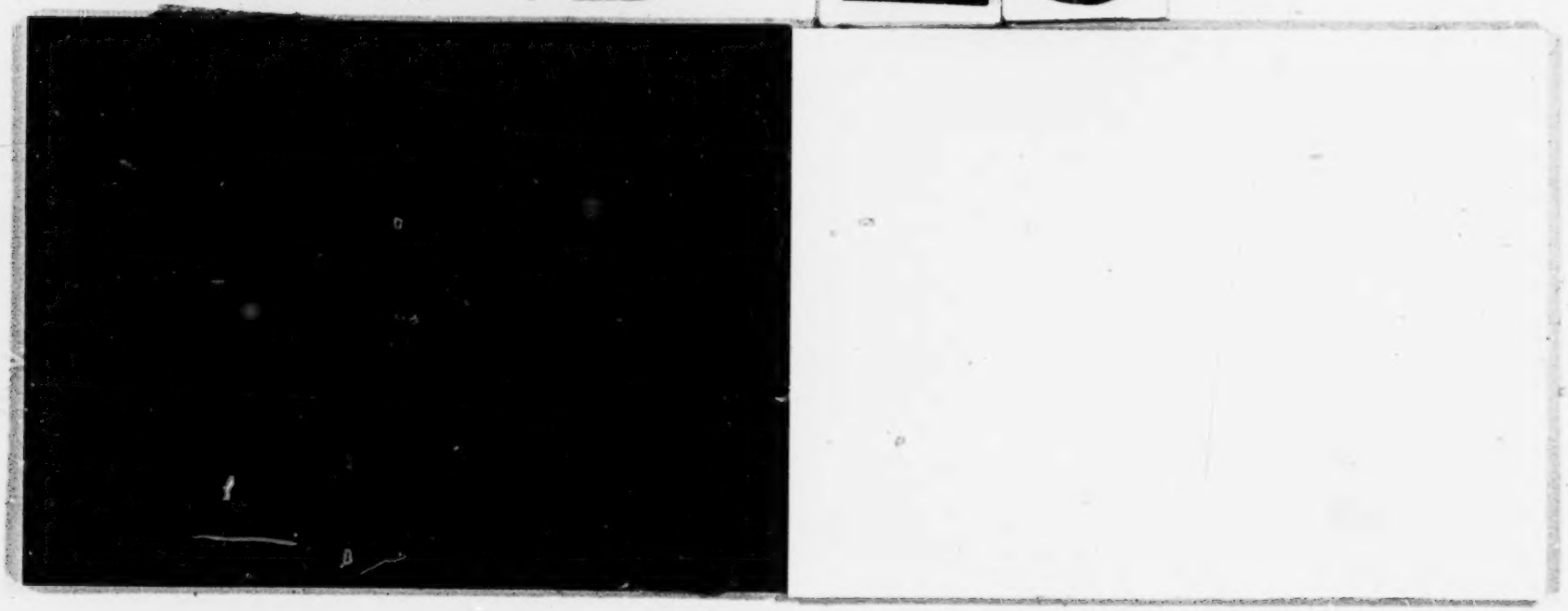

1.0 1.1 1.25 1.4 1.6 1.8 2.0 2.2 2.5 2.8 3.2 3.6 4.0 4.5 5.0

(Testimony of Thomas Moore Price.)

Q. Will you give us the distance through which these wall plates were driven from each end?

A. In the south tunnel—— [1275]

Mr. Tinning: Q. Do you mean this now before August 28th or after?

A. Well, August 21, 1935. The south drift in the south tunnel was started on May 8, 1935. The crossover was constructed and the north drift in the north tunnel was started on June 1, 1935. The station of the south drift in the south tunnel was—the first station was 140 plus 50 approximately. The station of the south drift in the south tunnel was approximately 139 plus 73.

On August 21, 1935, the south drift had been advanced to Station 131 plus 31, a distance of approximately 919 feet.

Mr. Wittschen: Will you read the answer of the witness?

(Record read.)

The Witness: A. The north drift of the south tunnel had been advanced from the crossover to Station 131 plus 30, a distance of approximately 843 feet. The south drift in the north tunnel was started at Station 139 plus 53, on May 6, 1935, and continued to Station 131 plus 41, approximately, on August 21, 1935, a distance of 812 feet. The north drift in the north tunnel was started at the crossover on June 23, 1935, at Station 138 plus 80, approximately, and continued to August 21, 1935, to Station 132 plus 23, approximately, a distance of

(Testimony of Thomas Moore Price.)

approximately 657 feet.

Mr. Marrin: Q. Were those distances of the wall plate drifts through to the excavation in the west portal?

A. No; not at that time.

Q. Was the excavating on those drifts stopped at the time the excavating in the west portal was stopped? A. Yes, it was.

Q. Why was that?

A. The west portal excavating, up to that time, as I explained, had not advanced with the progress which we had hoped to the distance between the two headings; and progress from the west and from the east was so hard that I feared that the penetration of the supposed contact line between the Orindan formation [1276] and the cherts formation might be productive of a lot of water; and we would reach conditions that had been somewhat similar to the conditions that we had reached in the west excava-

(Testimony of Thomas Moore Price.)

Station to Station		Period 1935		Progress
116+81	117+05	5/5	5/11	24
117+05	117+14	5/12	5/18	9
117+14	117+51	5/19	5/25	37
117+51	117+96	6/15	6/22	45
117+96	118+03	6/23	6/29	7
118+03	118+52	6/30	7/6	49
118+52	119+02	7/7	7/13	50
119+02	119+63	7/14	7/20	61
119+63	119+95	7/21	7/27	32
119+95	120+52	7/28	8/3	57
120+52	121+17	8/4	8/10	65
121+17	121+90	8/11	8/17	73
121+90	122+11	8/18	8/20	21
				958

CONCRETE PROGRESS

Station to Station		Period		Progress
112+53	112+61	8/8	8/10	8
112+61	112+79	8/11	8/17	18
112+79	112+96	8/18	8/24	17
112+96	113+13	8/25	8/28	17
				60

Distance between arch concrete lining and face of core excavation as of Aug. 21, 1935, shut-down ..... 898 Ft.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 59. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(Testimony of Thomas Moore Price.)

Q. The first column of Exhibit 59 shows the stations in the tunnel? A. Yes.

Q. And the second column shows the period or the date in which the [1271] excavation occurred?

A. Yes.

Q. And the third column shows the number of feet of excavation of the core during the week shown in the second column? A. Yes.

Q. I show you another tabulation headed "South Tunnel Excavation Progress." Does that show the same data for the south tunnel?

A. Yes, it does. That also should be August 21 instead of 28.

Mr. Wittschen: Are you putting those in as one or two exhibits?

Mr. Marrin: Perhaps we had better make them two exhibits. I offer the second one as Plaintiff's Exhibit No. 60.

(The tabulation was marked "Plaintiff's Exhibit 60.")

(Testimony of Thomas Moore Price.)

PLAINTIFF'S EXHIBIT No. 60

SOUTH TUNNEL

EXCAVATION PROGRESS

Station to Station		Period 1935		Progress
112+45	112+86	1/21 to	1/26	41
112+86	113+01	1/27	2/2	15
113+01	113+34	2/3	2/9	33
113+34	113+51	2/10	2/16	17
113+51	113+84	2/17	2/23	33
113+84	114+32	2/24	3/2	48
114+32	114+62	3/3	3/9	30
114+62	114+83	3/10	3/16	21
114+83	115+15	3/17	3/23	32
115+15	115+48	3/24	3/30	33
115+48	115+97	3/31	4/6	49
115+97	116+48	4/7	4/13	51
116+48	116+93	4/14	4/20	45
116+93	117+29	4/21	4/27	36
117+29	117+37	4/28	5/4	8
117+37	117+84	5/5	5/11	47
117+84	118+25	5/12	5/18	41
118+25	118+74	5/19	5/25	49
118+74	119+14	5/26	6/1	40
119+14	119+45	6/2	6/8	31
119+45	119+84	6/9	6/15	39
119+84	120+25	6/16	6/22	41
120+25	120+82	6/23	6/29	57
120+82	121+16	6/30	7/6	34
121+16	121+64	7/7	7/13	48
121+64	122+15	7/14	7/20	51
122+15	122+73	7/21	7/27	58
122+73	123+29	7/28	8/3	56
123+29	123+95	8/4	8/10	66
123+95	124+41	8/11	8/17	46
124+41	124+57	8/18	8/21	16
				1,212

(Testimony of Thomas Moore Price.)

Station to Station		Period 1935		Progress
		CONCRETE PROGRESS		
112+45	112+53	7/20	to 7/20	8
112+53	112+71	7/21	7/27	18
112+71	112+71	7/28	8/3	0
112+71	112+98	8/4	8/10	27
112+98	113+16	8/11	8/17	18
113+16	113+33	8/18	8/24	17
113+33	113+51	8/25	8/28	18
				106
Distance between arch concrete lining and face of core excavation as of Aug. 21, 1935, shut-down				1,106

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 60. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

I am changing on the face of this in pencil the date from August 28 to August 21.

Q. How was this prepared?

A. This was prepared from original records which we have in the office files, and which form the basis of these documents, here.

Q. And you have checked those?

A. Yes, I have.

Q. And to the best of your knowledge and belief they are correct? A. Yes.

Q. Referring to this tabulation, Plaintiff's Exhibit No. 59, will you state how far the north tunnel had been excavated at the time the excavation

(Testimony of Thomas Moore Price.)

work was shut down on August 21, 1935? That shows excavation beyond the concrete, does it not?

A. Yes.

Q. Will you state how far that had been excavated beyond the concrete on that date? Doesn't that show at the bottom?

A. I was going to subtract the stations, and that would give it. I believe that is the distance, about 898 feet.

Q. Referring to Exhibit 60, the distance is how much? A. 1106 feet.

Q. Now, Mr. Price, was any work done on the east portal of the tunnel? A. Yes.

Q. Will you state what is was?

A. Along in April, 1934, it became [1272] quite apparent that we were not being able to maintain our proposed progress schedule.

Q. April, 1935, you mean?

A. April, 1935, I mean, not 1934, and I believed that it would be practicable to do some work at the east portal for several reasons, the east portal being over a hill from the west portal, it was not practical to use the same plant at all to serve it, to either excavate it or service the job, and I recommended that we build a small plant over there which would supply compressed air and the other necessities for excavating wall plate drifts. I thought it would be advisable to do this from the east portal rather than do it from the west portal, because such an operation should be an operation in itself, and would confuse the work on the west

(Testimony of Thomas Moore Price.)

end, where we were advancing the tunnel by excavating all of the excavation that was to be done in the tunnel—I believed if we could drive wall plate drifts through the west portal to intersect with the operations—I mean from the east portal to intersect with operations from the west portal, that that would have several advantages; it would eliminate all drift work that was being done, that would be done at the west portal in driving the drift as we advanced, and the core was made. I was sure that very soon we would reach ground where we could use at least a wall plate drift system, and if these drifts had been constructed through the hill by the time we reached that ground that progress would be much more rapid and that we could make a much sooner completion of the job; and also these drifts would open up the tunnel, would ventilate the air better, and give us a chance of escape from the regulations respecting the explosive gases in the tunnel, by ventilating it better and giving access at both ends. I consulted with every one of the members of the Six Companies regarding this plan, and Mr. Bechtel, and with the tunnel superintendent, and we all agreed it would be a proper plan to do. [1273] The excavation was started in the early part of May, 1935, and was continued until the shut-down of the excavation work on August 21, 1935.

The Court: If that was a good plan, a good method in May, 1935, why wasn't it in 1934?

A. We did not know the condition of the ground would require it.

(Testimony of Thomas Moore Price.)

Mr. Marrin: I would like to offer in evidence the poster which is on the easel as Plaintiff's Exhibit 61.

(The poster was marked "Plaintiff's Exhibit 61.")

Q. Drawing your attention to Plaintiff's Exhibit No. 61, Mr. Price, will you explain what that illustrates?

A. This illustrates the wall plate drifts as they were driven from the east and their approximate cross section. These dotted lines represent the approximate outside of the permanent concrete that was supposed to go into the tunnel.

Q. By these dotted lines you mean what?

A. These dotted lines.

Q. The perimeter?

A. Yes. The wall plate is shown at this point in the lower left-hand corner of the left-hand tunnel and the lower right-hand corner of the right-hand tunnel.

The Court: About how many feet would that be from the bottom of the floor?

A. That would be approximately 15 feet from the bottom of the floor of the tunnel to the bottom of the drifts; the drifts were, as I recall it, 9 or 10 feet high and there was approximately 10 feet above that to the top of the finished tunnel.

Mr. Marrin: You are referring to the longitudinal section of the tunnel on plaintiff's Exhibit No. 61?

(Testimony of Thomas Moore Price.)

A. Yes. At the top of the poster this shows the spacing in each tunnel, the upper tunnel being the north tunnel and the lower one the south tunnel, this being the west portal at the left and the east portal at the right. The heavy black lines on this portion of the poster represent two wall plate drifts in plan as they were driven from [1274] the east portal westward to intersect with the other work that was advancing from the west toward the east. This cross-over section here indicates that this south drift of the south tunnel was driven in first and then a cross-over driven to drive the north drift of the south tunnel and the same way in the north tunnel.

Q. Why was the cross-over driven?

A. This portal was in very bad ground and it was difficult to get a face that would stand vertical long enough to enable us to get underground even with a small drift; we would excavate and re-excavate, and have ground there which continually came in, and I felt it would be better not to expose too much of it until all had been excavated; it was absolutely necessary to make a face for the men to work there.

Q. The black lines on the longitudinal section of the tunnel running in from the east portal represent the distance through which the wall plate drifts were driven in each tunnel?

A. Yes. That is starting at station—I can give it more accurately from my other data.

tion; and that being driven on a downward grade of 4 per cent, I feared that opening up much water there might be a disadvantage to the drifts, as constructed; and I did not want to go any further and tap that supposed contact line between the two formations.

Q. You say the drifts were on a 4 per cent grade?

A. Yes.

Q. Was the highest part of the drift toward the portal?

A. Yes; the highest part was at the portal. They were being driven downhill.

Q. How was water removed from the drift?

A. By pumping.

Q. You were driving through the Orindan formation? A. Yes.

Q. The water would have an adverse effect on that formation?

A. Yes. It did; very much water in the bottom of the drift; it was a very muddy—as soon as water touched the Orindan at all, it became very muddy; and, in the bottom of the drift, it was almost impossible to walk through it unless you were very sure-footed; in fact, the water seemed to cause the Orindan to disintegrate very fast and work down into mud.

Q. Was any of the ground through which the tunnels were excavated up to August 21, 1935, self-supporting?

A. No, sir; I don't think so.

Q. Did it all require permanent timbering?

(Testimony of Thomas Moore Price.)

A. All required heavy timbering.

Q. If the ground through which the tunnels were being excavated had been self-supporting, could the excavation have proceeded at the same time as the portions of the tunnels which were excavated were being lined with concrete?

A. Yes.

Q. Will you explain that?

A. If we had ground that would be self-supporting, the ground which had not been self-supporting would soon be caught up with concrete, and the ground that would be self- [1277] supporting would not give any trouble, would not delay the operations at all. That was why we had to quit: was because we could not find any ground that was self-supporting.

Mr. Marrin: There was introduced as Defendant's Exhibit "HH," a construction schedule of February 5, 1935. I would like to have it. I may have the wrong number.

The Court: While you are checking up on that, we will take an adjournment until tomorrow morning at ten o'clock.

(Thereupon, an adjournment was taken until Friday, April 29, 1938, at 10 o'clock a. m.) [1278]

(Testimony of Thomas Moore Price.)

Friday, April 29, 1938.

THOMAS MOORE PRICE,

Direct Examination (Resumed).

Mr. Marrin: Q. Mr. Price, I show you Plaintiff's Exhibit 3, which is the specifications for the construction of the project of the defendant, and I will ask you if there is any provision in the specifications dealing with the disposal of the muck or material from the tunnels. A. Yes.

Q. Would you read those to us, please, giving the page and the section number from which you are reading?

A. Under Section 32, sub-heading 5, on page 59, in the left-hand column of the specifications it states:

> "Material excavated from the tunnel section shall be used to make embankments as provided under Section 8, 'Grading' of these specifications, and all operations in placing such material in fills or embankments shall conform thereto; provided, however, that any material which in the opinion of the District Engineer is unsuitable for use in embankments shall be disposed of at the expense of the Contractor in a manner satisfactory to the District Engineer; and provided further that material in excess of that required for embankments and for which, in the opinion of the District Engineer, there is no practicable use on any part of the work, shall also be disposed of by the Contractor at his own

(Testimony of Thomas Moore Price.)

expense and in a manner satisfactory to the District Engineer.

"Material excavated from the tunnel section and required to be used in the making of embankments will be used only on the highway west of the West Portal, and it is contemplated that all tunnel excavation which is suitable for the purpose will be used to make necessary embankments on this section of the highway. No provision has been made for using any such material on the Northeast [1279] highway approach and none shall be placed thereon unless the District Engineer so directs.

"Where excavated material is used for embankments on any part of the work the Contractor will be allowed 'Overhaul' as provided in Section 8, 'Grading' of these specifications, with the following modifications thereof.

"No payment for 'Overhaul' will be allowed for the distance material is transported within the limits of the tunnels, but haul will be measured from the Station of the Portal of the Tunnels, as shown on the plans, and the provisions for free haul of five hundred feet (500') shall apply to any distances material is required to be transported beyond such Portal Station. Overhaul will not be paid where unsuitable or surplus material is required to be disposed of by the Contractor at his own expense."

(Testimony of Thomas Moore Price.)

That refers back to Section 8 of these same specifications, Section 8 beginning on page 11, but the portion I wish to refer to is on page 12, entitled "Embankment," and the subheading under that entitled "Compacting." It has a (b) in front of that word, on the right-hand column of page 12:

"Except as otherwise specified herein embankments shall be constructed in layers not exceeding eight inches (8") in thickness. The sides of the fill shall be placed first and the center shall be carried up lower than the sides. Each layer shall be thoroughly compacted by rolling with a twelve (12) ton three-wheeled power roller or with a tamping roller, the outer surface of which shall be studded with teeth not less than seven inches (7") long and having a surface area of approximately four square inches (4 sq. in.) each; the roller shall be of such a weight that the load upon each tooth will not less than three hundred pounds (300 lbs.). Unless the material when placed in the fill is moist [1280] enough to be properly compacted, each layer shall be watered sufficiently to dampen the material before being rolled. Successive layers shall not be placed until the layer under construction has been thoroughly compacted.

"Embankments built of rock or rocky material shall be constructed in layers from eight inches (8") to not more than eighteen inches

(Testimony of Thomas Moore Price.)

(18") in thickness, and watered and rolled thoroughly with a three-wheeled power roller weighing not less than twelve (12) tons. The use of tamping or sheepsfoot rollers will not be permitted for compacting layers over eight inches (8") in thickness. The thickness of the layers of the material containing large rock shall be the minimum which the size of the rock present in the material will permit, but in no case shall the thickness of the layers exceed eighteen inches (18"). The Contractor will be required to break up oversize rock with sledges or otherwise to make the layers conform to the maximum allowable thickness."

I believe that is all that is pertinent to that.

Q. Now, Mr. Price, referring to Defendant's Exhibit P, which is on the easel, will you step down here and point out to the Court where the fills are located in which these specifications provided the tunnel muck must be placed?

A. This is Oakland, at this end, or the westerly end of the tunnel, and this is the approach leading to the tunnel. This dotted line through the hill represents the tunnel to be constructed, and this is the east portal or the northeast section of the highway, as to which I just read the specifications, which extended beyond the tunnel for approximately 1000 feet or so, not very far. The fills referred to in the specifications are the fills immediately adjacent to

(Testimony of Thomas Moore Price.)

the west portal, approximately a distance of half a mile, I would say. The tunnel ascended steadily, this was approximately 5 per cent. [1281] grade, I believe, compensated somewhat up to the west portal of the tunnel, and the tunnel, itself, was on a 4 per cent. grade still ascending, the highest point reached on the highway traversing the hill was approximately four or five hundred feet east of the tunnel; the road still ascended after passing through the tunnel before the summit was reached on the highway, it was conclusive to me that the specifications providing therefor that the material move through the tunnel westerly to go into these fills, and not over the hill to the fills, that is, they are high hills of steep winding grade--by "steep" I mean approximately 6 or 7 per cent., it made it impracticable to haul any muck from the east portal over the hill into the fills.

Q. Was any fill provided at the easterly portal of the tunnel?

A. There was a small amount of fill, but there was also some excavation there that would amply take care of that fill.

Q. That is the excavation for the east portal building?

A. The excavation for the east portal building, and the road up to it.

The Court: Tell me, was there enough in the core of this tunnel to take care of the fills on either end, or both?

(Testimony of Thomas Moore Price.)

A. Yes, there was approximately 170,000 yards of excavation, according to our engineers' calculations.

Q. I am not good going on yards, tell me generally.

A. I will just give you that approximately 170,000 yards required, and the neat measurement was approximately 207,000 yards; in other words, there was approximately 37,000 to 40,000 cubic yards more than, apparently more than enough to do that fill, if there were no over-break in the tunnel, that is the neat measurement.

Mr. Marrin: Q. What do you mean by an overbreak?

A. If there were no larger section than the actual section required by the specifications. [1282]

Mr. Tinning: Q. What figure did Mr. Price give as the neat measurement of the tunnel?

A. I think approximately 207,000.

The Court: Don't take advantage of what I have in mind.

Mr. Tinning: No, I was interested in the figure.

The Court: I have heard so much about fill, I wanted to know if there was enough to take care of the fill on both ends or either one of them. You say there was? A. Yes.

Mr. Marrin: Q. There was, Mr. Price, if the District Engineer would permit the use of all of that—I say there was sufficient fill if the District

(Testimony of Thomas Moore Price.)

Engineer would permit the use of all of the material taken out of the tunnel for the fill.

A. Yes, I understood there would be sufficient material. However, soon after I came on the job I realized there was going to be some larger sizes than would be needed in the fill, than was permitted by the specifications.

Q. Why could the larger sizes not be used?

A. It would be impracticable to put them in the fills and break them up and down to 18 inches, to make an 18-inch layer; in making an 18-inch layer, a maximum layer of 18 inches in a fill it is very difficult to get a rock which is much more than 12 or 15 inches in diameter to maintain the maximum thickness.

Q. As I understood from your reading of the specifications, the fill was to be laid in a layer 18 inches thick. A. Yes.

Q. And then that was compacted?

A. Rolled, compacted.

Q. And for that reason the large rocks out of the tunnel could not be used?

A. It was impracticable to use them, and for that reason I changed somewhat the system that has been discussed.

Q. I just want to ask you one question about this exhibit, I do not want to criticize the exhibit, gentlemen, but this exhibit P is apparently supposed to show a cross section of this range of [1283] hills——

Mr. Tinning: You are supposed to look at the

(Testimony of Thomas Moore Price.)

hill from a view above and to one side, and it does not really represent a cross section. It is not an architectural perspective drawing, but only a diagram.

Mr. Marrin: Q. There is, however, a range of hills running straight through here on a higher elevation, is there not? A. Yes.

Q. So that there is no valley here, or access from the easterly end of the tunnel to the west?

A. No.

Mr. Tinning: There is a spine or backbone of the hill that runs north and south, and that is what the tunnel is through. If there was a valley we would not have built a tunnel.

Mr. Marrin: Q. If anything were taken from the easterly end of the tunnel and placed on the fills in the westerly end it would have to be hauled up over the road and over this hill, would it not?

A. Yes, it would have to go up the road and through the old highway tunnel, which was open at that time.

Q. Could you give approximately how far that would have to be hauled if that were done, a rough estimate?

A. I would say approximately two miles, with the winding in the road; that is purely an estimate, however, I have not measured it.

Q. That would be a very expensive operation?

A. Yes, it would be rather an expensive operation.

(Testimony of Thomas Moore Price.)

Q. Will you describe what arrangement you made for placing the material from the tunnels into these fills to the west?

A. When I arrived on the job in September there was a railroad leading down from the tunnel to the fill on the approximate grade of the finished road, I think possibly 5 per cent., but there was no provision for making any selectivity of the material out of the tunnel with this railroad. So I threw the railroad to the opposite [1284] side of the valley.

Q. By "threw" you mean you changed it?

A. Yes, I changed it to the opposite side of the valley and built a bin from which trucks could haul the material which would be suitable to make the fills. The material was hauled from the tunnel by means of four-yard muck cars, dump cars, and all of these cars passed over the top of this bin, and any material that was unsuitable, any car that contained any rocks that would be of a size that would be unsuitable to the fill was run on down the fill and dumped off and wasted on private property, largely. By this means I was able to get a rough segregation of the materials without screening it or any other segregation of materials to go into the fill, and generally maintain a material in the fill that was acceptable. I did not know at the time how much of this material would be needed or would be wasted in this fill, or would be required to be wasted by some other decision of the District Engineer; as a matter of fact, I do not recall the District

(Testimony of Thomas Moore Price.)

Engineer ever deciding against any particular material, with the exception that he did not want Orindan material, as I understand it, on the top of the fill. This was one of the reasons, I might say, why it was impracticable to take any more material out of the east end than was absolutely required in order to save the material, as much as possible, for the west approach.

Q. Was there any necessity for completing the fills early in the work?

A. Yes. I felt there was an urgent necessity for completing the fills as soon as possible, because after they had been completed it was necessary to pave them, and if we had not gotten these fills completed early in 1935 it would be necessary for them to go over until the spring of 1936, and with the provisions of the time limit set up by the contract it would not be proper [1285] weather, there would not be proper weather prior to May, 1936, which would permit the completion of the work, and for that reason I was anxious to get all of the material I could into these fills as fast as possible.

Q. Mr. Price, I think you were here when Mr. Larson testified concerning the concrete plan that he contemplated, were you not? A. Yes.

Q. You heard his testimony with respect to that? A. Yes.

Q. When did you first learn of the plan for concreting the tunnel?

(Testimony of Thomas Moore Price.)

A. Immediately after I came on the job in the latter part of September, 1934.

Q. You gave this study at that time?

A. Yes, I did as soon as I arrived.

Q. Did you read the provisions of the specification with respect to the concreting?

A. Yes, I read them and had quite a discussion about them with Mr. Larson.

Q. Did you believe from reading the specifications that Mr. Larson's plan was practicable?

A. Yes.

Mr. Wittschen: He should not be called upon to pass upon the plan of somebody else. You can ask him what he did.

The Court: I think he is going on the suggestion that I probably made, namely, the necessity of not going over the details of Larson's testimony unless there is a dispute about that.

Mr. Marrin: Yes, I did not want to cover a lot of detail if I could avoid it.

The Court: Proceed. It will not help us very much to have one man approve another man's work.

Mr. Marrin: It is more or less preliminary, it is leading up.

The Court: Proceed.

Mr. Marrin: Q. Would you point out the provisions of the specifications upon which you based that belief?

A. I refer to [1286] Section 32 of the specifications, entitled "Concrete Lining."

Q. Would you read it?

(Testimony of Thomas Moore Price.)

A. I was wrong about that being entitled "Concrete lining." It is entitled "Tunnel Construction" with a subheading "Concrete Lining."

Q. On what page?

A. On page 61, subsection "Concrete Lining," entitled "Description":

> "6. Description. The concrete lining for the tunnels shall consist of the concrete arch ring as shown on the plans, with steel reinforcing as designated or as otherwise directed by the District Engineer.
>
> "The thicknesses of concrete shown are minimum thicknesses, and the attention of the Contractor is directed to provisions hereinbefore set forth in this section, requiring additional concrete as made necessary by the methods of excavating, timbering, or otherwise supporting the excavation.
>
> "7. Materials. Concrete for lining shall be Class 'B' concrete, as provided in Section 13, 'Portland Cement Concrete,' of these specifications, and the provisions thereof and the provisions contained in Section 15, 'Concrete Structures,' shall apply to all concrete in tunnel linings except as modified herein. Grouting shall be performed as elsewhere specified in these specifications."

This comprises the extent of that section on concrete lining of tunnels and refers back to Section 15 of the same specifications.

(Testimony of Thomas Moore Price.)

Q. Is that on page 25?

A. Page 25, Section 13, under the subheading, "Placing Concrete."

> "Concrete for the tunnel lining shall be placed continuously between any two (2) adjacent construction joints, in lifts not more than six feet (6′) deep, measured in a vertical direction. The topmost lift, having a width not to exceed eight feet (8′), shall not be placed until the adjoining concrete on both sides [1287] has been in place for at least seven (7) days, unless otherwise directed by the District Engineer.
>
> "All concrete shall be used while fresh and before it has taken an initial set. Concrete shall not be used after more than thirty (30) minutes have elapsed from the time water was first brought into contact with the cement."

on the same page, under subheading 12, it states:

> "Concrete shall be deposited in uniform horizontal layers, not deeper than twelve inches (12″), care being taken to avoid inclined planes or inclined construction joints. Construction joints must be built with square ends and level tops, except as otherwise directed by the District Engineer; in arch type structures, joints shall be made at right angles to the axis of the rib. Each layer shall either be placed before the previous layer shall have taken its initial set, or, if the previous layer

(Testimony of Thomas Moore Price.)

has taken its initial set, the surface of the previous layer shall be prepared as herein specified for the preparation of hardened surfaces."

I would like to read the two paragraphs immediately preceding that also on the same page.

Q. What page is that?

A. Page 25, Section 15:

"Concrete shall not be permitted to fall from a height greater than six feet (6'), except through an enclosing pipe, in which case the height of fall shall not exceed twelve feet (12'). An enclosing pipe may be required by the District Engineer for placing concrete in columns, walls and deep footings.

"Concrete shall be uniformly distributed during the process of depositing and in no case after depositing shall any portion be displaced in the forms more than three feet (3') in a horizontal direction. Care must be taken not to displace the reinforcement, pipes, anchor bolts or other devices which are to be embedded in the concrete." [1288]

Q. Now, at that time were you familiar with the placing of concrete in tunnel lining by the pneumatic gun method?

A. Yes, I was reasonably familiar with it.

Q. Would you mind stepping to the board and diagram briefly the method which had been used to your knowledge in placing concrete in tunnel linings by the Hackley gun method?

(Testimony of Thomas Moore Price.)

The Court: We will take a recess for a few minutes. [1289]

(After Recess)

Mr. Marrin: Q. Mr. Price, you have made a drawing on the board. Will you explain the methods which, in your experience, have been used in placing the concrete with the Hackley Gun?

A. This is a rough representation of the tunnel, looking at it from the side. This is to represent it as looking at it from the end of the tunnel. This would be the area to be concreted. The forms would be here, the inside line of this section on the right-hand side, and the material through which the tunnel was driven, with temporary support, would be this outside line; the concrete lining to be filled, the area between the forms, and between the outside of the tunnel excavation. This is a longitudinal section, and I have attempted to illustrate a section of the concrete that has already been poured. I could not show it all here; but it extends from here up to here. This line here would be that line there,—about like this. This is intended to represent a pneumatic gun of some description, and this is a discharge pipe from the gun which is generally placed so it has the least curvature possible for concreting, and the concrete to be pushed by compressed air up through this pipe and into the forms.

The general practice of pneumatic equipment, so

(Testimony of Thomas Moore Price.)

far as I know, and I believe yet, in placing concrete in tunnels, is to put the material in as fast as possible. In other words, that should be done with any concreting system, because, in my experience, the best concrete is a concrete that is placed the fastest, so there is less chance to get what we call "cold joints." Particularly with a pneumatic system gun, the concrete should be shot in to a mass of concrete that is obtained at the end of the pipe; that is necessary, by the fact when a pneumatic gun discharges concrete it has somewhat of a tendency to segregate the mortar from the rock particles that make up the concrete; and, shooting that into a mass of fresh [1290] concrete, tends to remix that and make it a more homogeneous mixture. The general practice is to shoot your concrete and let it fall over the sides of the forms, down to the bottom, and let it stop at the bottom, like this,—the concrete running down these inclined layers as fast as possible, on one side, then on the other side. It is true it roughly makes layers; and my understanding of the particular paragraph referring to concrete tunnel concrete was the elevation between these two layers, the vertical distance between the lifts, as the engineer calls them; he said it should not exceed 6 feet. If you shoot concrete with a pneumatic gun into the form, into a mass of fresh concrete, there is no danger from falling concrete; it hits that soft mass and absorbs the blow, and protects the men who work back of the concrete in the

(Testimony of Thomas Moore Price.)

forms,—inside here,—in vibrating it or anything else that is necessary. I have not got this drawing quite long enough; but, as that fills up, the usual plan is to withdraw this whole arrangement,—the pipe and the pneumatic gun—put it back into the tunnel further; the layers of concrete built up until at last there is only a small opening here. When the pipe is pulled out to the edge of the form, and the concrete dumped into it, as much as possible, before it is finally withdrawn and the hole closed up——

The Court: Q. How many feet is that from the floor to the ceiling?

A. Well, I would say approximately 30 or 32 feet, I believe, in the Broadway Tunnel.

Q. The specification says something about a limit of 6 feet?

A. That was the point I wished to bring out. I did not think the specification, because of the paragraph set aside for tunnel concrete, referred to concreting in the tunnels. I knew we had been doing that on the outside concrete. We had been pouring concrete for six months, at least—well, not six months; but considerable concrete [1291] had been poured, and we had adhered, so far as I know, rigidly to those specifications which required concreting to be placed, put in half of the form over 3 feet and not over 6 feet; but in view of the fact the Engineer had set aside this paragraph specifically on tunnel lining, I assumed that was a modification of the——

(Testimony of Thomas Moore Price.)

Mr. Wittschen: Your Honor, there is nothing in the notice of rescission that says they rescinded because the concrete was required to be placed in a certain way, and that the Engineer made the interpretation of the specification in such a way that they were either delayed or misled by that; and, while it is very interesting to know how they laid the concrete in the tunnel, and I have no particular objection to it, it is wholly immaterial.

Mr. Marrin: I think it is very material. The plaintiff had before it, at the time it bid, these specifications; it did not have the benefit of the Engineer's interpretation of it at that time, or the interpretation he was going to place upon them. It was necessary for the plaintiff to plan a method of placing concrete which it believed would be permitted by the specifications and which was in accordance with the usual practice in placing tunnel linings in other projects; and the plaintiff went ahead and made its plans based upon that interpretation of the specifications. It developed later, because of the Engineer's interpretation of the specifications, that this method could not be followed out practically, and it was necessary at that point to make a radical change in the method of placing the concrete in the lining of the tunnel, and that caused a considerable delay in placing the concrete. It is those facts we desire to bring out.

Mr. Wittschen: Section 15 of the specifications says: [1292]

(Testimony of Thomas Moore Price.)

"Concrete shall be deposited in uniform horizontal layers, not deeper than twelve inches (12″), care being taken to avoid inclined planes or inclined construction joints."

And those are inclined planes; they are not horizontal. I am reading from page 25. Assume that everything Mr. Marrin says is true: what difference does it make? They did not make any claim they were misled; they did not say, "We don't want to do it." They did not say, "We are going to walk off the job," and they did not rescind on that ground; they rescinded for something entirely different; and all the details of their various motions in building the tunnels are wholly immaterial. This case will have to be decided, as I view it, upon the reasons stated in the notice of rescission; and this is not one, and neither is there any other claim, in writing or otherwise, objecting to the Engineer requiring them to lay it horizontally.

Mr. Marrin: Of course, while that section is in the specifications, Mr. Wittschen, there is also another specific section that says that concrete for tunnel lining shall be placed continuously between any two adjacent construction joints, in lifts not more than six feet (6′) deep, measured in a vertical direction,—specifically referring to tunnel lining.

As to materiality, this evidence, if your Honor please, goes to the question of time. If the work was delayed for causes which were beyond the control of the Contractor, then it is our contention the Con-

(Testimony of Thomas Moore Price.)

tractor is entitled to an extension of time. In connection with that, we feel we are entitled to show all the circumstances in connection with the construction, so the Court may determine whether the plaintiff was delayed by causes beyond his control; and there has been, in the cross-examination of other witnesses, criticism of the fact that the concrete lining was not laid up closer to the face, and we desire to show the facts in connection with that.

[1293]

This witness has testified, if your Honor please, that this interpretation of this provision was that the lifts which could not be more than 6 feet, measured vertically, were the lifts between each of these layers; in other words, these lifts could not be more than 6 feet deep, measured in a vertical direction.

Mr. Wittschen: Are those horizontal, Mr. Marrin?

Mr. Marrin: No; they are not. In this provision with respect to the tunnel concrete lining, there is nothing said about it being horizontal.

Mr. Wittschen: I just read it. It is under "General Concrete"; and they refer to that at page 25, on the right-hand side:

> "Conveying, Placing and Compacting Concrete. Concrete shall be deposited in uniform horizontal layers, not deeper than twelve inches (12"), care being taken to avoid inclined planes or inclined construction joints. Construction

(Testimony of Thomas Moore Price.)

joints must be built with square ends and level tops, except as otherwise directed by the District Engineer; in arch type structures——"

This certainly was an arch type structure——

"——joints shall be made at right angles to the axis of the rib. Each layer shall either be placed before the previous layer shall have taken its initial set, or if the previous layer has taken its initial set, the surface of the previous layer shall be prepared as herein specified for the preparation of hardened surfaces."

I am willing to concede you are right, for the argument. I still think it is wholly immaterial, in this controversy, because they contracted to build a tunnel; they contracted to leave certain things to the Engineer—and let us assume they are correct, that he misinterpreted the specifications: He had a right to misinterpret them because they agreed that his interpretation should prevail; and it does not make a bit of difference, particularly when you come down to the fact they never once objected to it, in writing, and never once [1294] noted it as a ground for rescission.

Mr. Marrin: We are not attempting to attack the Engineer's decision on this. We are simply showing he had reasonable cause to believe, from these statements, that the method was a practical method; and the other provision with respect to concrete in the tunnel lining being placed in lifts of not more than 6 feet, measured verticaly, is a

(Testimony of Thomas Moore Price.)

specific provision referring to the tunnel lining. The section you have read is a general——

Mr. Tinning: What section do you refer to now?

Mr. Marrin: On page 25:

> "Concrete for the tunnel lining shall be placed continuously between any two adjacent construction joints, in lifts not more than six feet (6′) deep, measured in a vertical direction."

Now, the other provision relates to other concrete; and there were many structures,—outside structures and buildings,—which were to be constructed with concrete; and, as we want to show, that construction—it was provided for placing concrete horizontally in one foot layers; that was meant to refer to those structures; but we don't question the Engineer's decision, in insisting upon the method, except as it shows that the method which we proposed, and we had a right to assume we could use, was impracticable in view of his construction of the specifications.

The Court: That goes back to that phrase I used, —a homely phrase: that all the Engineer was, was an umpire.

Mr. Wittschen: Yes.

Mr. Marrin: On this particular subject, we did not have the benefit of his decision before we bid upon these plans and specifications.

The Court: I know very well you did not.

(Testimony of Thomas Moore Price.)

Mr. Wittschen: Well, nobody had.

The Court: Nobody had. I am trying to analyze this; that is [1295] the reason I suggested that the language in the specifications, aside from the fact counsel indicates even though he misrepresented it, it would accomplish nothing by this testimony.

Mr. Marrin: Well, I think it would, your Honor. It would show we were in good faith, if it was a reasonable interpretation.

The Court: I am not questioning anyone's good faith.

Mr. Marrin: We, in good faith, did everything we could to get the plans arranged and go ahead with the work.

Mr. Wittschen: When I said it did not make any difference, I still stand by that; but you produce these paragraphs—the one you called for and the one we called for; they are on the same page; and it says he shall place them horizontally. I think you have utterly misconceived it; but, for the sake of putting on my argument, I am willing to admit the Engineer utterly misconceived it. However, his judgment controls; and if he interpreted "horizontally" to be in a straight line, I don't think you can find any fault with it.

The Court: Well, I want to give you a record, of course, on whatever you have in mind; but I rather agree with counsel's view, namely, that the specifications provide for this method and the manner of procedure.

(Testimony of Thomas Moore Price.)

Mr. Marrin: Well, perhaps that is true, your Honor; but I think, nevertheless—we are offering this testimony, if your Honor please, for the purpose of showing the plans that we had for placing the concrete; and will follow that by showing we could not place it by this method, and the steps that were taken to remedy that situation to meet the Engineer's objection and his interpretation.

The Court: I will give you a record on it; but I have indicated my state of mind. However, I want to give you a record. I am satisfied this is the best example of it. Of course, the Contractor pursues the most economic method he can, under the circumstances. [1296] He tried probably to satisfy the Engineer. However, in this phase of the work, there was not any controversy, that I recall from what has been placed in the record to date.

Mr. Marrin: Well, there is a controversy, if your Honor please.

The Court: Well, if there has been up to this point, I have failed to understand it.

Mr. Marrin: Proof of that will be developed,—the concrete lining proposition,—before this case is closed. We propose to show, on our case, simply what we did, and the plans we made, and whether or not the concrete was placed; that will be shown eventually. In other words, this evidence is of facts.

(Testimony of Thomas Moore Price.)

Mr. Wittschen: Well, the notice of rescission did not specify any interference with the concrete. The notice of rescission or no letter ever objected to the District Engineer's interpretation of the concreting situation. This is bringing into the case—and the authorities are uniform, when one rescinds on a specific ground,—as the Supreme Court of the United States has said in one case,—he cannot come into court and assert other grounds, —he cannot mend his hold and here you are asserting something new and different, as a ground of your action.

Mr. Marrin: No; we are not. We will connect this up and show that the delay resulting from the concrete operation here slowed up all of the work. We did rescind, on the ground that we were entitled to an extension of time, which was refused. We did rescind, on the further ground that a penalty was imposed which was unjustified, and this is part of the facts going to prove our case on that issue. We did not, if the Court please, attempt to specify in the notice of rescission everything that happened on the job.

The Court: You may proceed. I have indicated I will give you a record, so you will not lose any of your legal rights. I will rule finally. I have indicated my view. [1297]

Mr. Marrin: Yes—not to go into this any further?

(Testimony of Thomas Moore Price.)

The Court: You may have a record on it. I don't want to construct this tunnel again, if I can avoid it. I don't want to mislead you, or don't want to waste your time, much less my own. If you want a ruling, I will give a ruling, so that you have a proper record here. I will give you the privilege, of course, to show what you wish.

Mr. Marrin: I don't understand quite the state of the record.

The Court: Even though I disagree with your view, I want you to have a record; so, if I am in error, after you leave here at least you will have a record to comfort you.

Mr. Marrin: Thank you, your Honor.

Q. Mr. Price, were you able to pour the concrete, in the west portal section, in the manner which you have indicated on the blackboard?

Mr. Wittschen: We object to that, on the same ground.

The Court: Overruled.

Mr. Wittschen: Exception.

The Witness: A. No; we were not able to pour it that way.

Mr. Marrin: Q. How were you required to pour it?

A. We were required to pour it——

Mr. Wittschen: I—I make the same objection. How he poured the concrete is wholy immaterial, and it is not a basis for rescission, if your Honor please.

(Testimony of Thomas Moore Price.)

The Court: Objection overruled.

Mr. Wittschen: Exception.

The Witness: A. We were required to pour it in conformity with the general specifications on structural concrete, which required that the concrete would not be moved in the forms over 3 feet, and shall not be put in, in layers over one foot in thickness.

Mr. Marrin: Q. Did you thereafter change your plan for pouring [1298] the concrete lining in the tunnels? A. Yes.

Q. Will you state what you did, in that connection, in the change of plan?

Mr. Wittschen: We object to that as immaterial and not a ground for rescission.

The Court: Q. You may answer.

Mr. Wittschen: Exception.

The Witness: A. After the concrete in the portal section had been stripped, in the early part of December, 1934, the concrete was inspected early in January by Professor Raymond E. Davis of the University of California, and the District Engineer, Mr. Bogs; and they pointed out to me that there were inclined joints, apparently cold joints, existing in this portal concrete, and that there were some rock pockets in it; and the District Engineer stated to me that further concrete of that type would not be acceptable.

In the pouring of the portal concrete, by the pneumatic gun, we had—the decision was imme-

(Testimony of Thomas Moore Price.)

diately upon me; and, at that time of the year, I arrived on the job—it was late in the fall—the concrete had to be poured some way just as quickly as possible, in order to protect the portal structure of the tunnel, and make it possible to work in the tunnel during the winter months. The concrete plant was not ready; the supply of concrete was not ready; and I used any emergency method I could. I obtained concrete to pour on the portal section. There was a concrete plant set up, owned by the subcontractor, K. E. Parker Company; and we used that in pouring the south tunnel. It did not function very well, and we were not able to get over 8 yards per hour. When we poured the north tunnel, we obtained permission from the Engineer to pour it in lifts along the side walls, 15 foot lifts, I believe; and obtained concrete from a paving mixer, which we set up in the portal to [1299] supply the pneumatic gun; and, in order to get it done just as quickly as possible, the Engineer told me he would let me use that method for that section, but it would not be permitted in future concreting. With the use of that method in the north tunnel, we were not much better off; we could not make much better than 8 cubic yards per hour. In other words, it was so slow it was impossible to prevent cold joints from forming in the concrete; and, naturally, a cold joint is, I think, the worst thing that can happen to concrete. I concluded, from this, that it would be impracticable, if not probably im-

(Testimony of Thomas Moore Price.)

possible, to pour the concrete and comply with the Engineer's specification, with the pneumatic system; and I set about to find some other system that could be used. The pneumatic system was the only system, at the time, that had been used for a number of years, and had proved practicable, and it was particularly practicable in this tunnel, from the standpoint of complying with the Industrial Accident Commission's requirements.

Mr. Wittschen: I submit your witness has answered the question.

Mr. Marrin: No; he has not.

Mr. Wittschen: You did not ask him anything about the Industrial Accident Commission or any compliance with Mr. Davis's order. I have given him a lot of latitude.

The Court: Answer the question and proceed.

Mr. Marrin: Q. Will you just state what you did, in connection with changing the concrete plans or plants for placing the concrete?

Mr. Wittschen: To be consistent, your Honor, I make the same objection.

The Court: Overruled.

Mr. Wittschen: Exception.

The Witness: A. I looked into the method of pouring concrete by the Pumpcrete method, manufactured by the Chain Belt Company of Milwaukee, Wisconsin.

Mr. Marrin: Q. What did you know of the Pumpcrete method? [1300]

(Testimony of Thomas Moore Price.)

Mr. Wittschen: I object to that as immaterial, what he knew about it. It is not binding on us. It was their obligation to lay the concrete, and on all of the other grounds stated.

The Court: I will allow it.

Mr. Wittschen: Exception.

A. What was the question?

The Court: He wanted to know what did you know of the Pumpcrete method. Describe what that was.

A. The pumpcrete method was a machine based on a German patent manufactured by the Chain Belt Company, of Milwaukee, Wisconsin, which consisted essentially of a reciprocating pump which forced the concrete by piston pressure through pipes into the place where it was to be used.

Mr. Marrin: Q. Will you go ahead and state what you knew of the use of that Pumpcrete method at that time?

A. It was quite a new method in this country, and we had been through an operation with it at Boulder Dam for two years preceding this. The Chain Belt Company had asked the Six Companies to take one of these pumps and try it out down there and see if we could make it work, and we did succeed in making it work on 1½-inch aggregates, in exposed places around the job, and I believe in some cases in small tunnels where 1½-inch aggregates were acceptable. However, the machine had not been developed fully at all, and had not been

(Testimony of Thomas Moore Price.)

proven with respect to completing the arch in the lining of tunnels. The specifications for aggregates on the tunnel were 2½ inches in size, and it was about the latter part of the season of 1934 that they had made an improvement in the pump which permitted it to pump the concrete manufactured with 2½-inch aggregates.

The Court: The ultimate fact, however, was you were able to go on with the work under this method?

A. No, we were not at that time. [1301]

Q. I misunderstood you then.

A. I was getting around to the point that the machine had always been driven by electricity, and we could not have electric power in these tunnels.

Mr. Marrin: Q. Was this machine a standard factory product at the time?

A. No, it was not a standard factory product.

Q. Was it being put out specially for this job?

A. Yes, they had an engineer who was designing the machine at the factory and came out with the machine for the job, Mr. C. F. Ball.

Q. What were the problems that had to be worked out with this machine before it could be used on this job?

A. The application of the power was the most important problem; we were prevented from running electric cables or wires of any kind into the tunnel by the provisions of the Industrial Accident Commission, and we could not use the motors in the tunnel, except a special type of motor called "Ex-

(Testimony of Thomas Moore Price.)

plosion Proof Motors," and it was practically impossible to get them in that size and to drive them after we got them in, because we could not get batteries enough in there to continuously operate them; it was impracticable to supply air motors to the Pumperete, because of the power required by the machines.

Q. Do you mean by that that some kind of power was necessary to drive the pump? A. Yes.

Q. The kind of power that was previously used was electric motors? A. Yes.

Q. Due to the regulations of the Industrial Accident Commission the motors previously used were not permitted in the tunnel? A. Yes.

Q. Did you communicate with the Chain Belt Company with respect to this matter?

Mr. Wittschen: Objected to.

Mr. Marrin: I am not asking for the communication. [1302]

Mr. Wittschen: I don't know, my experience is limited, but can we have an objection to all of this without repeating it?

The Court: As I have indicated, I want both sides to have a record, and I will permit any reasonable latitude. But let us take the phase of this problem now that we are talking about and analyze it for a moment. How could that be charged, under these plans and specifications, to the District? I am speaking legally, and after all, of course, this will have to be finally determined legally.

(Testimony of Thomas Moore Price.)

Mr. Marrin: I am not trying to charge them with a breach on account of the concrete. I am simply trying to bring out, to show to your Honor that we used every effort to produce a method of placing this concrete which would be satisfactory to the District Engineer, and we were just as diligent as we could be in working this out and placing the concrete lining as soon as possible. Now, in connection with that it developed it was not practicable, in our opinion, to use the pneumatic gun method, it was slow, it was bad concrete, it was objected to by the District Engineer. In good faith we went to another method, which at that time had not been fully developed, namely, this Pumpcrete. There were difficulties in connection with that in getting the proper power to operate that machine; there were difficulties in connection with getting permission of the Industrial Accident Commission for changes on this machine, the particular design of the machine had to be worked out with the Chain Belt Company, and we want to make a record and we want to show the diligence and efforts that the contractor put in to develop that as quickly as possible and get the concrete lining placed in a manner satisfactory to the District. That is the purpose of this testimony at this time.

Mr. Wittschen: I think it is obvious from the gas encountered [1303] in the tunnel that the Industrial Accident Commission would not permit electrically-driven motors.

(Testimony of Thomas Moore Price.)

The Court: That is obvious to me.

Mr. Wittschen: It is also obvious the way this would have to be done, and all of those things I assume prudently would have been taken care of before you got to that place—that is argumentative, it is not binding on us how you did it; you were permitted to do it any way you pleased, as long as you complied with the specifications.

Mr. Marrin: Yes, but when we came up against a condition which required an entire change in the plan we were entitled to show the diligence with which we attempted to proceed with the contract.

The Court: What, for example, has been developed in regard to delay on account of pouring this concrete? I do not recall that there has been any delay other than what Larson testified to, in relation to the difficulties. Was there any written communication?

Mr. Wittschen: No.

Mr. Marrin: We advised them of these changes.

Mr. Wittschen: That you were objecting to delay.

Mr. Marrin: Objections to delay on account of the concrete?

The Court: Yes.

Mr. Wittschen: How did you put the first 110 feet of concrete in?

Mr. Marrin: We put that in accordance with the pneumatic method, and Mr. Price stated he made a concession there which would not be made for the

(Testimony of Thomas Moore Price.)

rest of the tunnel, it would have to be changed, and the engineer objected to the concrete, and we were trying to comply with his objection.

Mr. Wittschen: He merely objected to your method of laying. He did not object to the apparatus. [1304]

Mr. Marrin: He required a method, and it our opinion that was wholly impracticable to lay the concrete.

The Court: What is before the Court now?

Mr. Wittschen: I understand it could have been done with a Hackley gun. It was laid in the Sunset tunnel that way, with a Hackley gun.

Mr. Marrin: Was it laid horizontally?

Mr. Wittschen: In Twin Peaks, so I am told. I was not there. I was advised of that fact. I cannot tell you about the other tunnels, because I don't know.

The Court: Let us proceed. I think during the recess we had better work out an understanding so that both sides will be protected, and I will give you my views if it may be helpful. Proceed.

A. May I have the question?

(Question read by the reporter.)

A. Yes.

Mr. Marrin: Q. Over what period of time, Mr. Price?

A. Over the period of time from the latter part of November, 1934 up through June, 1935, approximately.

(Testimony of Thomas Moore Price.)

Q. Were there any problems in connection with the use of the Pumpcrete that had to be worked out in addition to the power?

Mr. Wittschen: The same objection, on all of the grounds stated.

The Court: The objection will be overruled.

Mr. Wittschen: Exception.

A. Yes, there were two problems connected with the power; the Industrial Accident Commission would not permit the use of motors, ordinary motors in the tunnel, and I had evolved a plan about the first week in April of installing motors in a steel box and feeding them with compressed air in order to keep the pressure in the place where the motors operated at a higher pressure than the tunnel [1305] air, so that the explosive mixture, if there were any in the tunnel, would not get into where the motors were and cause an explosion.

Q. It has been testified here, and I think you testified here, that excavation was resumed in December, 1934?

A. Yes, excavation on the core in the concrete section.

Q. Were you able immediately at the time of resumption of excavation to determine the type of concrete equipment which should be used in concreting the tunnel? A. No.

Q. Why not?

Mr. Wittschen: Objected to as immaterial, and on all of the grounds previously stated.

The Court: Overruled.

(Testimony of Thomas Moore Price.)

Mr. Wittschen: Exception.

A. It was impossible to determine it because we could not determine what kind of forms we could use, or how our equipment had to be placed; it might be necessary for us to continue on with the drift method and build the forms in place, leaving the core in place until the tunnel had been concreted, and then remove them. On the other hand, if we were able to open up the tunnel and timber it, and timber it so that it would hold, excavating the core, it would be possible to build the steel forms which could be moved into the tunnel so that concrete could be placed in them in the most economical way that it could be placed, and that had to be determined; it was necessary to see if we could open up the tunnel and hold it open for a specific distance to perform that operation before the plan could be determined.

Q. How much of the ground would have to be opened up before you could determine that?

A. Approximately 300 feet.

Q. When was that amount of ground opened up in the tunnel? [1306]

A. Approximately around April 1, 1935.

Q. When was the Pumpcrete ordered?

Mr. Wittschen: Objected to as immaterial, and on all of the grounds heretofore stated.

The Court: You may answer.

Mr. Wittschen: Exception.

A. The Pumpcrete was ordered after I received permission from the Industrial Accident Commis-

(Testimony of Thomas Moore Price.)

sion at a hearing before Mr. Fry and his assistant in San Francisco permitting the use of slip ring motors.

Mr. Wittschen: I object to that statement.

Mr. Marrin: Q. I just asked you about the date on which you ordered the Pumpcrete.

A. Approximately April 12, on or about that date.

Mr. Wittschen: 1935? A. Yes.

Mr. Marrin: Q. When were the forms ordered for the tunnel?

A. The forms were first ordered on—bids were asked on February 28th.

Q. Of what year? A. 1935.

Mr. Tinning: I submit the answer should go out as not responsive. The question was when they were ordered.

The Court: When were they ordered?

Mr. Marrin: When were they ordered?

A. The forms for placing the concrete in the tunnel, April 13, 1935.

Q. And when was the Pumpcrete delivered to the work?

A. On or about June 20 or 21, 1935.

Q. When were the forms delivered to the work, Mr. Price?

A. The forms were delivered about the first week in July, I believe.

Q. 1935?

A. 1935. That is the first of the forms. We ordered two sets.

(Testimony of Thomas Moore Price.)

Mr. Marrin: I have here a copy of a letter from T. M. Price [1307] to Wallace B. Boggs, dated February 9, 1935, to which is attached two drawings. Will it be stipulated that was sent and received by Mr. Boggs?

Mr. Tinning: Yes.

Mr. Marrin: I would like to offer that in evidence.

Mr. Tinning: It was sent by Mr. Price and received by Mr. Boggs.

Mr. Marrin: That is right.

Mr. Wittschen: In view of the fact that we have admitted all correspondence we won't object to that.

(The letter was marked "Plaintiff's Exhibit 62.")

[Set forth in the Book of Exhibits at page 281.]

Q. Attached to that, Mr. Price, are two drawings. Will you explain what those drawings show?

A. The drawing numbered A2-7 shows the concrete plant that was used inside of the tunnel in lining the tunnel.

Mr. Tinning: Q. Mr. Price, can you tell me where you got the marking of A2-7? Isn't that something that you have made up in your exhibit? The number on this seems to be DWG No. 13.

A. You are right, there is DWG No. 13 underneath.

Q. You are calling a number that you put on in preparing your exhibits. I have a photostatic copy of that diagram that you furnished the district. It is dated January 31, 1935. A. Yes. [1308]

(Testimony of Thomas Moore Price.)

Mr. Marrin: Will you explain what that shows?

A. The drawing reading from right to left shows the agitator car on the ramp, which car was used in hauling the mixed concrete from the mixing plant located at the West Portal into the tunnel. It had power agitation and discharged into a machine which represents the Pumpcrete.

Q. Will you show that to the Court?

A. The whole apparatus is mounted on a car which operated on the same track as the excavated muck was hauled out of the tunnel on.

The Court: Where did I see a diagram of this before?

Mr. Tinning: In the April 2 letter that went in evidence.

Mr. Marrin: There is a difference here that I want to bring out.

A. The pipes are shown leading from the Pumpcrete into the concrete forms which are represented immediately to the left of the Pumpcrete, and the concrete forms are shown to be filled by means of chutes leading from ports in the pipe to these chutes; that is shown in cross section at the left-hand side of the drawing, where the tunnel concrete is shown and the pipe leading into it, the chutes leading into it from the pipe leading from the chute.

Mr. Tinning: The chutes went through the sides of the concrete form?

A. Yes. This is a pipe looking at the cross section.

(Testimony of Thomas Moore Price.)

Mr. Marrin: Q. Will you pass to the second drawing?

A. The second drawing, No. 16, dated February 10, 1935, illustrates the concrete forms which we originally planned to use, and which we planned to use at that time. This second drawing shows the concrete called the furring concrete, being poured integrally with the concrete lining.

Q. Will you explain what you mean by "furring concrete"?

A. Furring concrete is concrete that is placed, as I understand it, to level up indentations in the structure that may be placed in [1309] other concrete, but it is not particularly designed to support, to carry any strength. At this point about 7 feet above the bottom, on the right-hand side of the tunnel, there were ventilating flues approximately every 12 feet; these flues were constructed of light steel, supposed to be constructed of light steel, like sheet steel, and set in the concrete, and the spaces between them, about two inches on each side of them, were covered with concrete.

The Court: What was the purpose of that?

A. The purpose of that was to lead the fresh air from the ventilating duct up here down into the roadway section all along the tunnel so that fresh air would be in there.

Mr. Tinning: Q. The furring is like a coating of plaster in a room, it covers up the conduits and

(Testimony of Thomas Moore Price.)

air spaces and gives a smooth interior to the inside of the tunnel? A. Yes.

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.)

[1310]

Afternoon Session

THOMAS MOORE PRICE,

Direct Examination (continued)

Mr. Marrin: Q. Mr. Price, just before the noon adjournment, you were explaining Exhibit 62, which is the letter from you to Mr. Boggs, enclosing and sending to him the two drawings which are part of that exhibit. Did Mr. Boggs make any statement to you, with respect to those drawings, when you submitted them to him?

Mr. Wittschen: We object to that as incompetent, irrelevant and immaterial, calling for a conversation which would not necessarily be binding upon the defendant, tending to prove no issue.

The Court: I will allow it subject to a motion to strike and over your objection.

Mr. Wittschen: Exception.

The Witness: A. No; not at the time I submitted them.

(Testimony of Thomas Moore Price.)

Mr. Marrin: Q. Did he, thereafter?

Mr. Wittschen: Same objection.

The Court: The same ruling.

Mr. Wittschen: Exception.

The Witness: A. Yes. Along in the middle of March, 1935, to the best of my recollection, Mr. Boggs told me that, while he would not stop us if we wished to proceed with the installation of the concrete lining with the furring concrete included in it, nevertheless he did seriously object to it, and would not recommend that we pour the furring concrete with the lining of the tunnel.

Mr. Marrin: Q. Did he state the reason for his objection?

Mr. Wittschen: Same objection.

The Witness: A. Yes.

The Court: Same ruling.

Mr. Wittschen: Exception. [1311]

Mr. Marrin: Q. State what he said.

Mr. Wittschen: Same objection.

The Court: Same ruling; and note an exception.

The Witness: A. He stated that, due to the ventilating flues which were of light—the metal flues leading the air from the upper chamber in the tunnel to the roadway section were constructed of light sheet metal, and the electrical conduits being constructed of a material that would break easily, there would be serious possibility of damage to them, by pouring the concrete around them, due to the hydrostatic pressure and due to misplacing them or disturbing them during the operation of pouring.

(Testimony of Thomas Moore Price.)

Mr. Marrin: Q. Did you do anything thereafter to meet his objection? A. Yes.

Mr. Wittschen: Same objection on all the grounds heretofore stated.

The Court: The same ruling.

Mr. Marrin: Q. What did you do?

A. We redesigned the forms.

Q. I refer you to Defendant's Exhibit "II," which is a letter from you to Mr. Boggs, dated April 2, 1935, to which there is a drawing attached. Are these the forms, as you redesigned them to meet that objection? Is that a drawing of it?

A. Yes, this is.

Q. You sent that to Mr. Boggs on or about the date of the letter? A. Yes.

Q. Thereafter—I refer you now to Defendant's Exhibit "JJ",—which is a letter dated April 9, 1935, from Mr. Boggs to you, or to Six Companies of California, to your attention,—which has been read in evidence; and I will ask you: Does that contain his comments on the revised design which you submitted? A. Yes, it does.

Q. What did you do, after receiving the letter?

A. Why, the comments that were brought up there did not affect the basic design [1312] of the forms; so I ordered the forms immediately, believing that we could straighten out the points he brought up on the actual pouring conditions.

Q. And the forms, as ordered by you,—did they provide or did they not provide for pouring the furring concrete integral with the concrete lining?

(Testimony of Thomas Moore Price.)

A. They did not provide for it.

Q. In other words, you met the objections that Mr. Boggs made to your earlier design? A. Yes.

Mr. Marrin: I have here the original of a letter received from the Industrial Accident Commission, written by Fred L. Lowell, Supervising Engineer, Mining Section, of the Industrial Accident Commission, to Tom Price, General Manager of Six Companies of California, dated April 11, 1935; and I offer that in evidence as plaintiff's exhibit next in order.

Mr. Wittschen: May we look at it a moment?

Mr. Marrin: Surely.

Mr. Wittschen: We object to the introduction of this letter, on the ground it is incompetent, irrelevant and immaterial, and on the further ground that the contract provides that the Contractor would abide by all the safety rules of the Industrial Accident Commission.

Mr. Marrin: If your Honor please, this letter is a letter from the Industrial Accident Commission setting forth the regulations of the Commission with respect to the use of motors and power on the concrete; and we offer it.

The Court: I will allow it.

Mr. Wittschen: Exception.

(The letter was marked "Plaintiff's Exhibit No. 63.")

Mr. Marrin. This is a letter on the letterhead of the Industrial Accident Commission, dated April 11, 1935: [1313]

PLAINTIFF'S EXHIBIT No. 63

Industrial Accident Commission
State Building
San Francisco

April 11, 1935

Tom Price, General Manager,
Six Companies of California,
P. O. Box 120,
Berkeley, California

Subject: Concrete pump and flood lights in Low Level Broadway Tunnels.

Dear Sir:

Any "wound-rotor" or slip ring motors with their speed control equipment are to be enclosed in tight fitting boxes, and fresh dry air from the compressed air line is to be piped into these enclosures for ventilation. The starting devices for each of these two motors are to be so arranged that the motors cannot be started without first establishing compressed air ventilation.

Power lines and heavy-duty portable cable will supply 440 volt power from the transformers located outside of the tunnel to the concrete machine until it is approximately 1000 feet from the portal. The 440 volt cable may then supply power to step-up transformers (440 to 2300 volts), 1000 feet in from the portal where the power will then be stepped up to 2300 volts and carried to the next bank of transformers located approximately 2000 feet from the portal, where the voltage will be stepped down again (2300 to 440 volts) for the machine.

(Testimony of Thomas Moore Price.)

The transformers underground are to be located in the cross-cuts between the two tunnels. There must be a tight fitting door on both sides of the underground transformers with fresh dry air from the compressed air line ventilating the space between the doors and about the transformers.

The lights to be used on this machine shall be of the "vapor-proof" or "explosion-proof" type.

These lights and the power for the machine must be disconnected by switches located outside of the tunnel when blasting is done in the tunnel, and are not to be turned on after blasting until the fire boss has made a test of the tunnel air for explosive gas and found it to contain not more than ½ of one per cent methane gas in any part of the tunnel.

The vapor-proof flood lights exhibited at our office are approved for tunnel lighting between the portal and the flood lights now in use at the face subject to the same provisions for extinguishing them by a switch outside the tunnel when blasting is being done in the tunnels.

Yours very truly,

(Signed) FRED L. LOWELL
Supervising Engineer
Mining Section

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 63. Filed April 29, 1933. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(Testimony of Thomas Moore Price.)

Mr. Marrin: Q. Was that ruling made pursuant to a request made by you? A. Yes.

Q. Was that a modification of former rulings of the Commission, with reference to the use of electricity in the tunnels? A. It was.

Q. What were the former regulations?

A. That no electric wiring would be permitted in the tunnels.

Q. And this is the first permission you have to use electric motors or wiring in the tunnels?

A. I had received verbal permission the preceding day. This was a confirmation of it.

Mr. Marrin: I have here a letter from Six Companies of California to W. B. Boggs, dated July 1, 1935; and I offer that in evidence as plaintiff's exhibit next in order.

Mr. Wittschen: We object that on the ground it is incompetent, irrelevant and immaterial; that they were bound by the rulings of the Commission; and in no way binding upon the defendant.

The Court: Indicate, for the purpose of the record, the purpose of the offer.

Mr. Marrin: This is a letter transmitting to Mr. Boggs, at his request, a copy of the ruling of the Industrial Accident Commission.

The Court: I will allow it.

Mr. Wittschen: Exception.

(The letter was marked "Plaintiff's Exhibit No. 64.") [1315]

Mr. Marrin: This letter is dated July 1, 1935, and is addressed to Mr. W. B. Boggs, District Engineer, Joint Highway District No. 13, 1448 Webster Street, Oakland, California; and reads as follows:

PLAINTIFF'S EXHIBIT No. 64

July 1, 1935

Mr. W. B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St.,
Oakland, Calif.

Dear Sir:

As per your verbal request of today, we are enclosing copy of letter from the Industrial Accident Commission, covering the use of motors in tunnels.

Very truly yours,
SIX COMPANIES
OF CALIFORNIA
By T. M. PRICE,
Project Manager

P:C
Enc.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 64. Filed April 29, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Marrin: Q. This letter refers to a verbal request by Mr. Boggs, Mr. Price. What was that request?

(Testimony of Thomas Moore Price.)

Mr. Wittschen: Same objection as heretofore made.

The Court: Overruled.

Mr. Wittschen: Exception.

The Witness: A. He requested me to give him my authority for installing the motor on the Pumpcrete, in that manner.

Mr. Marrin: Q. Is the letter which is referred to in here, from the Industrial Accident Commission, the same letter which has just been introduced as Plaintiff's Exhibit No. 63? A. Yes.

Q. When you sent to Mr. Boggs the copy of the ruling of the Industrial Accident Commission contained in Plaintiff's Exhibit No. 63, did he say anything to you with respect to it?

Mr. Wittschen: Objected to on the ground it is incompetent, irrelevant and immaterial. The matter of putting in concrete was entirely a matter for the Contractor and his obligation. It does not prove any issue in the case.

Mr. Marrin: We expect to show, your Honor, even at that date Mr. Boggs stated that he did not consider that the Contractor had sufficient authority to use these motors in the tunnels, and requested [1316] the Contractor to apply to the Industrial Accident Commission for further permission.

The Court: In accordance with the plans and specifications?

Mr. Marrin: What is that, your Honor?

The Court: Because of the plans and specifications?

(Testimony of Thomas Moore Price.)

Mr. Marrin: No; because of the ruling of the Industrial Accident Commission with respect to the use of electricity in the tunnels.

The Court: Read the question.

(Pending question read by the reporter.)

The Court: I will allow it.

Mr. Wittschen: Exception.

The Witness: A. Yes; he stated to me that he did not consider that the ruling of the Industrial Accident Commission covered the situation, or the conditions which we were using on the Pumpcrete, with respect to induction motors.

Mr. Marrin: Now, I have here a copy of a letter from Six Companies of California, dated July 2, 1935, to the Industrial Accident Commission, requesting a further ruling with respect to the motors; and I will offer that in evidence as plaintiff's exhibit next in order.

Mr. Wittschen: We make the same objection on all grounds heretofore stated.

The Court: Objection overruled.

Mr. Wittschen: Exception.

(The letter was marked "Plaintiff's Exhibit No. 65.")

Mr. Marrin: This letter is dated July 2, 1935, and reads as follows: [1317]

(Testimony of Thomas Moore Price.)

PLAINTIFF'S EXHIBIT No. 65

July 2, 1935

Industrial Accident Commission,
State Building,
San Francisco, Calif.

Gentlemen:

In reviewing your letter of April 11, it apparently is not clear as to whether we have permission or not, to operate induction type motors, which would not be enclosed in tight fitting boxes and fed with compressed air.

In order to clear this up, we herewith respectfully request permission to operate small motors of this type, which, according to the manufacturers, are absolutely spark proof, there being no moving electrical connections. In connection with the pumping and hauling equipment, for the concrete, we plan to have two motors of this type on the pump rig itself, as well as one rotor, or slip-ring, motor, which will be protected as per your letter. We would also have one motor on each of the hauling agitators for concrete, and of which one at a time will be located at the pumping rig.

We would also like to work a 3-HP induction motor on a small conveyor belt, immediately adjacent to the pumping rig, to load muck from the concrete excavation, immediately ahead of the forms.

(Testimony of Thomas Moore Price.)

We thought this matter had been covered, and have made our plans accordingly; therefore, any consideration at your earliest convenience, on this, would be appreciated.

Very truly yours,
SIX COMPANIES
OF CALIFORNIA
By T. M. PRICE,
Project Manager.

P:C

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plif's Ex. No. 65. Filed April 29, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: Mr. Marrin, perhaps it would save delay later on, in cross-examination: What was the date the Pumpcrete arrived on the job? Would you give us that?

Mr. Marrin: Q. Could you state the date the Pumpcrete arrived on the work, Mr. Price?

A. On or about June 21, to my best recollection.

Mr. Marrin: June 1st of—— A. June 21st.

Q. Of 1935? A. Of 1935. [1313]

Mr. Marrin: I have here a letter from the Industrial Accident Commission, addressed to T. M. Price, dated July 10, 1935; and I offer that in evidence as plaintiff's exhibit next in order.

Mr. Wittschen: Would you wait until we read it?

(Testimony of Thomas Moore Price.)

Mr. Marrin: Surely.

Mr. Wittschen: We make the same objection as heretofore stated: that, by their contract, the plaintiff was bound to conform to the rulings of the Industrial Accident Commission; and the introduction of these letters tends to prove no issue in the case, and is entirely incompetent, irrelevant and immaterial.

The Court: Indicate, for the purpose of the record, the purpose of this line of testimony and the purpose of the offer.

Mr. Marrin: This letter, if the Court please, is——

The Court: I am not limiting it to that letter—this line of testimony, namely, the compliance with the Industrial Accident Commission ruling.

Mr. Marrin: This line of testimony is offered for the purpose of showing that the type of concrete equipment which the plaintiff was attempting to perfect here, in order to place the concrete lining, was required to be driven by a certain type of power; and that, under the regulations in effect by the Industrial Accident Commission governing safety in the tunnels at the time the Contractor commenced to work out this design of equipment, the use of electricity for electric motors in the tunnels was prohibited; and it was necessary for the Contractor to apply to the Industrial Accident Commission and get its permission for a modifica-

(Testimony of Thomas Moore Price.)

tion of those regulations, before either the District or the Commission would permit the use of the equipment; and that that was done.

Mr. Wittschen: I call attention to the fact that all of that is in the specifications. It requires the Contractor to abide by the rulings of the Commission; and that it, the plaintiff, chose the [1319] equipment that it would use, could have laid the concrete in any way it pleased, and that it is entirely immaterial as tending to establish any issue in the case; on the further ground, it is not mentioned as a basis for rescission.

Mr. Marrin: I would like to add that this is offered for the purpose of showing that the Contractor was unavoidably delayed in working out this problem for placing the concrete lining.

The Court: I will allow it subject to a motion to strike and over the objection of counsel.

Mr. Wittschen: Exception.

(The letter was marked "Plaintiff's Exhibit No. 66.")

Mr. Marrin: This letter is on the letterhead of the Industrial Accident Commission, State Building, San Francisco, dated July 10, 1935, and is addressed to Mr. T. M. Price, Manager, Six Company of California, Post Office Box 120, Berkeley, California; and reads as follows: [1320]

(Testimony of Thomas Moore Price.)

PLAINTIFF'S EXHIBIT No. 66

Industrial Accident Commission
State Building
San Francisco

July 10, 1935

Mr. T. M. Price,
Manager, Six Companies of California,
P. O. Box 120,
Berkeley, California.

Dear Sir:

Your letter of June 15, 1935, addressed to the Industrial Accident Commission and also your letter of June 26, 1935, also addressed to the Commission, both of which request exemption from the safety order pertaining to the lights to be used in the east tunnels, were duly received and considered and referred to this department for consideration and answer.

Your letter of July addressed to the Commission requesting exemption from the safety order pertaining to electric equipment particularly that part pertaining to permissible electric motors, was also received and considered and referred to this department for consideration and answer.

In regard to the request for exemption from permissible lights in the east tunnels, we wish to say that:

1. The Benjamin vapor-proof lamp may be

(Testimony of Thomas Moore Price.)

installed 10 feet back of the mucking machine and that any other lights used in the tunnel shall be of this type of lamp or else of the vapor-proof type formerly used at the Hetch Hetchy tunnels.

2. That no other type of lamp globes shall be used in any of the east tunnels and no lights except approved cap lamps shall be used between the floodlight 10 feet back of the mucking machine and the face of the tunnels.

3. That all lamp sockets and lamp connections shall be kept in good repair at all times and that it shall be the duty of the fire boss to examine all light connections and if any are found defective, it shall be his duty to report it to some proper electrician who shall repair it immediately.

4. If these lights are not kept in good repair and in safe condition at all times, then all light wires and globes may be ordered out of the tunnels and only permissible cap lamps shall be used exclusively in these tunnels.

In regard to the request for exemption from Special Safety Order pertaining to stationary electric motors we wish to say that:

1. The use of two induction motors on the concrete pump,—one induction motor on each of the two concrete agitators and one induction motor for driving a short conveyor belt in connection with excavation for the concrete work

(Testimony of Thomas Moore Price.)

is approved as long as the motors are used for this particular purpose but not for any other purpose without permission from the Commission. These motors shall be kept in the concreted section or within a few feet of it.

After the meeting in your office on July 8, 1935, and subsequent inspection of the project, we have the following suggestions to make which we think will have a tendency to improve safety conditions and health conditions as well.

It appeared that too much stress was being made of the fact that installations of equipment on the job was only temporary and therefore not necessary to devote too much care in protection of it. Equipment must be completely guarded before it is put into operation. No work shall be started until safe conditions prevail.

There should be close co-operation between the management, superintendents, walkers, shift bosses and the safety engineer and fire bosses.

The superintendents, walkers and shift bosses must be more diligent in order to detect and correct unsafe conditions. There seemed to be a tendency to install electric wires in the east tunnel hurriedly without due care for safety. These could have been installed correctly at first and thereby have saved the labor of hav-

(Testimony of Thomas Moore Price.)

ing to change them later, and also the criticism of putting in unsafe equipment.

It is recommended that the change rooms at the east end and at the west end be enlarged to provide sufficient showers for all men who desire to use them, also that ample arrangements be made so that all men can hang their working clothes in an orderly and sanitary manner so that they may dry properly.

Very truly yours,
(Signed) F. L. LOWELL
C.H.F.
FRED L. LOWELL
Supervising Engineer
Mining Section.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 66. Filed April 29, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: Mr. Marrin, perhaps we can clear this up. I notice in this letter of July 10th it refers to the Six Companies' letter of June 15th and the letter of June 26th. There are two letters omitted.

Mr. Marrin: I am not sure of that. Do you recall, Mr. Price?

A. No, I do not just at the moment.

Mr. Tinning: We suggest you make a note of it and you have them for cross-examination.

(Testimony of Thomas Moore Price.)

Mr. Marrin: All right, we will have them. I have here a letter from Wallace B. Boggs to Six Companies of California, dated February 13, 1935, which I would like to offer in evidence as Plaintiff's Exhibit next in order.

(The letter is marked "Plaintiff's Exhibit 67.")

This letter is on the letterhead of Joint Highway District No. 13 of the State of California, Oakland, Calif., February 13, 1935.

PLAINTIFF'S EXHIBIT NO. 67

Joint Highway District No. 13
of the
State of California

Oakland, Calif.
February 13, 1935

File: Broadway Tunnel
Schedule

Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California

Dear Sir: Attention of Mr. T. M. Price, Project Manager

I am in receipt of copy of your revised construction schedule.

My communication of February 5 requested that this schedule be submitted in triplicate.

(Testimony of Thomas Moore Price.)

Will you kindly furnish me with two additional copies at your earliest convenience?

Yours very truly,

(Signed) WALLACE B. BOGGS

District Engineer

WBB/VE

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R Plff's Ex. No. 67. Filed April 29, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

If your Honor please, the construction schedule was placed in evidence by the defendant as Defendant's Exhibit O.

Q. Mr. Price, other than that letter did Mr. Boggs ever make any [1323] comment to you with reference to this construction schedule?

Mr. Wittschen: Objected to as immaterial, irrelevant, and incompetent, and not proving any issue in this case.

Mr. Marrin: I desire to show, if your Honor please, that this construction schedule was presented to the District Engineer and he never made any objection to the schedule.

Mr. Wittschen: The specifications expressly provide that the District Engineer is not the monitor or guardian of the contractor, and he does not have to object to everything that is done, and I object that it does not tend to prove any issue in this case whether he commented or not.

(Testimony of Thomas Moore Price.)

The Court: You want to prove he was silent?

Mr. Marrin: If your Honor please, our construction of the District Engineer's duty is somewhat different.

The Court: He was silent?

Mr. Marrin: He was silent and never said anything about it, and he was there as engineer for the owner in charge of the whole construction operation, and anything that was not going on properly on this job, or if the contractor's construction schedule was not proper, it was the duty of the District Engineer to make the objection and point those matters out to the contractor.

Mr. Wittschen: In the first place, the specifications expressly provide that the failure of the engineer shall not in any way relieve the contractor of his duty, and I repeat it was no part of the engineer's function to take the contractor by the hand and tell him what to do.

Mr. Marrin: We offer it for the purpose of showing that there was never any objection, except this letter of August 30, 1935, two days after the cave-in, by the District Engineer to any of the contractor's methods or construction schedule of operations. [1324]

The Court: I agree that there was no legal obligation on him. However, I will allow you to have a record on it.

Mr. Wittschen: Exception.

A. Not that I recall.

(Testimony of Thomas Moore Price.)

Mr. Marrin: Q. Mr. Price, I draw your attention to Defendant's Exhibit O and will ask you to point out on there on what date that construction schedule states that the concrete lining will be commenced, that is, after the concreting of the west portal? A. On May 1, 1935.

The Court: Have we got that date on this report? A. Yes.

The Court: This rather confuses me in this, is there any doubt about when it started between counsel?

Mr. Wittschen: I think the point is it did not start until May, and he is trying to show now we did not object to it, but it pointed out that the contract would finish on time, and I think Mr. Marrin's desire is, if I may read his mind, to show we did not object, we were waiting for him to start.

Mr. Marrin: I simply want to show how much ground this construction schedule showed would be opened in the tunnel at the time the concrete lining was contemplated starting in accordance with this construction schedule which was submitted to the District in February preceding, and to which it made no objection.

The Court: How many feet would be open? What does the testimony already show in relation to that portion of the tunnel where Larson stopped?

Mr. Marrin: It shows there were about 800 or 900 feet in each tunnel which was open at the time of the cave-in of August 28th.

(Testimony of Thomas Moore Price.)

Mr. Tinning: Mr. Larson's testimony was that there was about 618 feet open in the south tunnel and 573 feet open in the north tunnel on April 30. [1325]

The Court: What is your thought?

Mr. Marrin: My thought is simply to show that according to this construction schedule it shows that——

The Court: Is this in evidence?

Mr. Marrin: Yes, it was put in evidence by the defendant.

The Court: Proceed.

A. This was a proposed construction schedule. It was made out with the information after January as planned, not accomplished. At that time the concrete is shown as starting on May 1, 1935 after the excavation for the sandstone section had been completed, practically completed. The sandstone section was estimated to start on November 1, 1934 and be completed on May 15, 1935, at which time the cherts formation would be started and completed in October, 1935, at which time the Orindan would be started and completed in March, 1936.

Mr. Wittschen: May I just ask a question to be sure I understand you? When you say completed, you mean excavation completed or concrete completed? A. The excavation.

Q. When was the concreting to be completed?

A. The concreting was to be started May 1 and continued to completion on April 25, 1936.

(Testimony of Thomas Moore Price.)

Q. Within the contract time? A. Yes.

Mr. Marrin: Q. How much of the tunnels would be excavated on May 1, 1935, at the time the concrete was contemplated to start?

A. Excluding the portal section, which was concreted approximately 650 or 660 feet.

Mr. Tinning: Let us not get confused. I think that Mr. Larson gave those actual distances, and that the distance was 618 feet, if I remember it, in the south tunnel, and 573 feet open on the north tunnel. [1326]

Mr. Marrin: That is actual excavation. I am talking of this proposed construction schedule, what it shows.

Mr. Tinning: I beg your pardon, I thought you were asking what was actually excavated.

Mr. Marrin: No, I am talking what the construction schedule showed, which was contemplated.

The Court: This is in evidence?

Mr. Marrin: Yes, the defendant put it in evidence.

Q. Mr. Price, when were concreting operations resumed in the tunnel in 1935 after the west portal had been concreted?

A. Why, footing concrete was started about the 1st of July or shortly, about the first week in July, 1935, and approximately at the same time in both tunnels; as I recall, the arch concrete was started in the south tunnel on or about July 19, and in the north tunnel on or about August 8.

(Testimony of Thomas Moore Price.)

Q. Was the Pumpcrete used in resuming pouring? A. Yes.

Q. Was any difficulty experienced in getting it into operation?

Mr. Wittschen: Objected to as immaterial, and on the grounds stated to a similar question.

The Court: The objection is overruled.

Mr. Wittschen: Exception.

A. Yes, there was some difficulty in the method of transferring the concrete from the Pumpcrete, itself, into the forms.

Mr. Marrin: Q. Was that satisfactorily solved? A. Yes, it was after a considerable time had elapsed with a lot of experimenting.

The Court: After a little educational program.

Mr. Marrin: Q. How much time did that take?

A. To the best of my recollection it took several pours, probably three or four weeks before we got it working in a manner that pouring was satisfactory to everyone. [1327]

Q. Did anything have to be done with the timbering in the tunnel preparatory to placing the concrete?

A. Yes; at the start of the concreting in each tunnel the timbers had intruded just east of the concrete portal section, had intruded two or three inches into the concrete. That is the first place we started after excavating the core of the portal concrete. Those timbers had to be trimmed in order to clear the specified distance of the concrete lining.

(Testimony of Thomas Moore Price.)

Q. For what distance did that trimming have to be done in the part of the tunnel that was opened?

A. As I recall it, for approximately four or five short pours in the south tunnel, and approximately three in the north tunnel. I desired to make short pours, 8 or 9 feet at that time, in order not to trim too much of the tunnel timber at any one time. As that was done the concrete in the next section would be poured, and so on, until the forms carried the section where the timbers had intruded.

Q. Do you mean that all of the timber that had to be trimmed was simply for a distance of four or five pours in the entire open excavation of the two tunnels?

A. Yes, that is true entirely in the south tunnel, to the best of my recollection up to the point in the tunnel about where the cherts formation began, about station 117, I believe. However, in the north tunnel there were two points, one about station 114 and one about station 116+70 or 75, where the timbers had intruded very shortly after they had been installed by Mr. Larson, and where he was forced to go back and reinforce timbers and put in additional timbers and brace them in order to keep them from coming in. At those points they had intruded several inches, up to six inches, into the concrete sections, but that movement occurred shortly after they had been installed and were watched carefully for a period of six months after they were [1328] installed and showed no more movement.

(Testimony of Thomas Moore Price.)

Q. Were those timbers at those points trimmed, or were they reset?

A. The timbers at the first point, about station 114, were the timbers which were being reset at the time of the August 28th cave-in.

Q. Will you describe briefly the operation of re-setting the timbers?

A. The timbers were reset—I should say that the only timbers that were being reset were the arch timbers; the post, the side wall post and the wall plate apparently were in good shape, and had not intruded.

Q. Would you mind just illustrating that briefly on the board, what you mean by that, so that it will be clear?

A. These are the side wall posts, and this is the wall plate, looking at the end. These are the segments which had intruded into the tunnel at the crown approximately 6 inches into the concrete area.

Q. Where you were re-timbering?

A. Where we were re-timbering; that extended over an area of approximately 25 or 30 feet, as I recall it, and we had started at—let us assume that is the section of the timbers that had been intruded; we started at the east end and worked back toward the west, resetting the timbers. The normal operation on that is to take out a small section. I will draw a short cross section, at any point like this, and assume that these are the two sets that are in-

(Testimony of Thomas Moore Price.)

truding into the concrete area, so that is the outside of the concrete line, and it is necessary to get these timbers back so that this point is outside of the concrete line. The method that we used was to take these timbers, take the lagging behind these timbers, which would represent a 2 by 12 or 3 by 12 timber in that position, take it out at this point, here, dig out behind, and get it so that it would look in a revised condition like this, loosening out the portion [1329] of the ground behind that post or lagging and blocking it with blocks off of the existing timbers which still intruded and proceed up accordingly all the way around until we had the lagging down and blocked to the existing sets which intruded. Then after that had been done all the way around, we placed a new set right there to hold that lagging, which set would extend from the wall plate around to a new post like that.

The Court: Q. What was the distance of that?

A. As I recall that is approximately 30 feet across there.

Q. Is it through that section that the cave-in occurred?

A. It is in that particular section that that particular cave-in occurred; we had started that work three or four days before in order to save time with the concreting, so that by the time the forms for concreting reached that point the timbers would be back out of the concrete line and no delay would be suffered by reason of waiting to re-timber the section.

(Testimony of Thomas Moore Price.)

Mr. Tinning: Might I ask Mr. Price a question?

Q. How long, approximately, was each one of those segments, in yards or feet?

A. Six or seven feet, I should judge.

Q. There were seven of them, so that they would be 42 feet?

A. Possibly I misunderstood your question; around the arch there would be approximately 40 to 45 feet from this point, measured on the curve over to the wall plate.

Mr. Marrin: Q. How large was that lagging?

A. It was 2 by 12 or 3 by 12 in the arch, it was 3 by 12 sometimes, no regularity, at least 2 by 12 and sometimes 3 by 12.

Q. And the method of procedure was to take out one piece of lagging at a time?

A. Take out one piece of lagging at a time.

The Court: Q. At the bottom, or how?

A. Starting at the bottom and working toward the top. There is the segment inside, starting and taking that piece of lagging out and setting it [1330] back and blocking it to the set that was intruding in the concrete.

Q. This was exposed for how long?

A. It had been exposed approximately six or seven months.

Mr. Marrin: Q. This particular section of the timbering? A. This particular section.

The Court: I recall now, but at this point of the intrusion, the intrusion had occurred shortly after it was excavated?

(Testimony of Thomas Moore Price.)

A. Well, in two or three days after we had noticed the spring on the timbers and removed it, and Mr. Larson went back and braced it up.

Mr. Marrin: Q. At the time you reset the timbering in this section was the timbering moving in?

A. No. I did not quite finish my previous answer. We had almost completed the setting back of these timbers, as I recall it, when the cave-in occurred, we had already set some ten or twelve sets coming toward the west end of the portal, and only had two or three more to reset, to the best of my recollection, at the time the cave-in occurred.

Q. Is that the usual manner of resetting timbers?

A. That is my understanding of the usual manner. I have never seen them reset in any other way.

Q. Who had charge of the resetting of the timbers? A. Mr. Whitmire.

Q. Did you confer with him with respect to it?

A. Yes, I conferred with him, quite a bit about it, and we both collaborated on the men who were to do that work; we both felt that they should be experienced, skilled men, and we put the best men, the best crew on it we had; the operation was continued 24 hours a day on the basis of three shifts, and it took quite a crew of men, because the work was necessarily slow and tedious.

Q. Why didn't you trim the timbers at this point instead of resetting them?

(Testimony of Thomas Moore Price.)

A. For two reasons. First, it would have been [1331] unsafe to trim that much of the timber, and the second reason, because the concrete was going so slowly, because the engineer required us to hold the forms in place for 72 hours after pouring, before we could move them or shift them; this took almost five days to make a concrete pour, and if that had been maintained we would have lost about ten days going through that section where the timbers were down, if we had done it in short sections, whereas we could save that much if the timbers were out of the arch and we could have gone ahead.

Q. If I understand your answer, the setting back of the timbers rather than the trimming of them would have enabled you to make longer pours?

A. Yes.

Q. And would speed up the operation of concreting the tunnel? A. Yes.

Q. Did the tunnel cave in on August 28, 1935, Mr. Price? A. Yes.

Q. At about what station? I might ask first, which tunnel? A. The north tunnel.

Q. At about what station?

A. Well, I would say it was approximately between station 114 and 125, somewhere along in there, I don't know the exact station.

Q. From 114 to 125?

A. From 114 to 114+25.

Q. What operations were being carried on at that point at the time of the cave-in?

(Testimony of Thomas Moore Price.)

A. The timbers in the arch were being reset outside of the concrete line.

Q. Was the concrete pouring on that date?

A. Not at that particular point. It was pouring further west in the tunnel. As I recall it, it was about 100 feet back of them.

Q. What concrete had been poured between the time the Pumpcrete was put into operation in July, 1935 and the time of this cave-in?

A. Could I refer to my little book? You mean the concrete in the north tunnel?

Q. You might state it fully.

A. In the north [1332] tunnel the portal concreted section the concrete had been poured from station 112+53 to station 113+13.

The Court: What is that distance?

Mr. Tinning: That was 60 feet.

A. Approximately 60 feet. And in the south tunnel concrete had been poured from station 112+45 to station 113+61, a distance of 116 feet.

Q. Had any arrangements been made at that time for pouring footing concrete?

A. Yes, footing concrete had been started earlier than the arch concrete, and preceded it by both distance and time.

Q. Why did you pour the footing concrete first?

A. For two reasons, I might say, in order to make a foundation to set the forms against so that the forms would be in good alignment, and particularly, shortly after the August 21st cessation of

(Testimony of Thomas Moore Price.)

excavation I determined to pour all of the footings in the tunnel that was then open, with the belief that 5 feet of concrete, 2½ to 3 feet high, located at the bottom of the plumb posts would shorten the height of the plumb posts and would stop the breaking; that was the principal trouble, the plumb posts broke, and if the concrete had been placed at the time it would strengthen the whole tunnel and stop the breaking; with that in mind I put the heading crews and crews that had been working pouring the tunnel after August 21, I moved them over to get these concrete footings in as fast as possible; that could be poured quickly without any forms, and we just dumped the concrete, as I remember, from the mixing plant to the forms, and that I felt could be done in a few days, and would strengthen the whole tunnel.

Q. Was the footing concrete poured at the point of the cave-in before the cave-in occurred?

A. Yes, it was.

Q. Were the plumb posts which you mentioned breaking in that part of the tunnel?

A. No, the plumb posts were breaking in the cherts formation, not in the sandstone. [1333]

Q. Were you at the tunnel at the time of the cave-in? A. No, I was not.

Q. What time of the day did it occur?

A. It was in the evening, somewhere around seven o'clock, I forget the exact time.

Q. How long had it been previous to that that you had been at the tunnel?

(Testimony of Thomas Moore Price.)

A. I do not recall exactly; to the best of my recollection I left the tunnel early that afternoon, around 3 or 4 o'clock; in any event, I had not arrived at home when I heard the report of the cave-in, but had arrived very shortly afterward.

Q. You arrived at the scene of the cave-in shortly afterward? A. Yes, about 7:30.

Q. Did you observe the cave-in? A. Yes.

The Court: Describe it in your own way, so that I will get some idea about the cave-in.

A. When I arrived at the job I found, naturally, a lot of excitement, the men had all come out of the tunnel and were down at the office. There was a statement that some men had been caught.

Q. The matter I had in mind was the cave-in, itself.

A. I think a longitudinal section of it would describe it better for you. A portion about 50 feet in the arch had fallen into the tunnel and filled it up, approximately like that.

Q. 50 feet?

A. 50 feet of this portion of the tunnel had come in and filled this area, here, and had worked this way to the top of the ground, and the top of the ground above the tunnel sunk about ten or fifteen feet.

Q. About what distance was it to the top of the ground?

A. I would estimate around 75 feet, maybe 100 feet. The proportions here are bad, but this had fallen down into the tunnel and blocked it.

(Testimony of Thomas Moore Price.)

Q. That is sufficient for my purpose. [1334]

Mr. Marrin: Q. Mr. Price, I show you a picture which has a legend on it,

"August 28, 1935 cave-in—Taken at point at top of arch on west end immediately thereafter. Note arch cap pushed down but not broken—also remains of catwalk."

Is that a true reproduction of the part of the tunnel at the time of the cave-in? A. Yes.

Q. Would you show it to his Honor? That was taken about what time—Will you explain that?

A. That is looking into the tunnel, your Honor.

The Court: Q. From what point?

A. From the west end, looking in. Assuming this is the portal out here, that picture is taken looking at that point right there (indicating on blackboard.)

Mr. Tinning: Looking from the west end at the top of the—

A. Yes, these are the timber sets. This is looking—

The Court: I cannot locate myself.

The Witness: Here is the top of the tunnel.

The Court: Q. The top? A. Yes.

Mr. Tinning: Your Honor, this would be just about where the camera was standing—somewhere about here (indicating).

The Court: I see.

Mr. Tinning: And pointing in toward the pile of earth.

(Testimony of Thomas Moore Price.)

The Witness: That is the same approximate line there; you are looking at those two timbers, your Honor.

The Court: I see.

Q. What is the size of these timbers?

A. Those are either 2 by 12's or 3 by 12's.

Mr. Tinning: Down here. These are 12 by 12, down here?

The Witness: Yes. This is the remains of the catwalk that was constructed throughout the tunnel, hanging from the ceiling like this, with a railing for the men to inspect the timbers up in [1335] the arch.

Mr. Marrin: I will offer that in evidence.

Mr. Tinning: I wonder if we could save some time, if you are going to put them all in, by putting them in as one exhibit?

Mr. Marrin: Yes; I will put them in as one exhibit. I think that might be better.

Q. I will show you another photograph, which has the legend on it:

> "August 28, 1935 cave-in—Taken about two hours later. Upper cross timbers are the start of the bulkhead—lower piled timbers are remains of staging on which men were working and catwalk."

Is that a true reproduction of the conditions at the time stated on the picture?

Mr. Tinning: Where was it taken from?

(Testimony of Thomas Moore Price.)

Mr. Marrin: Q. Will you explain where it was taken from?

A. It is taken again from the west end, looking into the cave-in. It shows the cross timbers; shows the timber bulkhead that was being constructed, and particularly these timbers in here.

Mr. Tinning: That was something that was put in after? A. After the cave-in.

Q. As part of the recovery work? A. Yes.

Mr. Marrin: Q. That bulkhead was constructed immediately afterward?

A. Immediately after the cave-in, yes, on each end.

Mr. Tinning: On that designation, the photograph shows, "Lower piled timbers"—That means the timbers down on the floor of the tunnel, as they dropped off the ceiling?

A. Yes; the remains of that catwalk and so forth.

Mr. Marrin: Q. I show you another picture, dated "August 28, 1935 cave-in—Showing start of sidewall drift to recover bodies." Will you explain that?

A. That was the beginning of that drift which was driven at this point through the muck,—the muck that caused the cave-in. [1336]

Mr. Tinning: The witness indicates two floor drifts, one at grade on each side of the tunnel, that is driven in, and that shows—

(Testimony of Thomas Moore Price.)

A. That particular drift is the—

Mr. Tinning: —that shows it in longitude.

A. It would be like this; starts there, and goes in like this.

Mr. Marrin: Q. This next photograph: "Cave-in of August 28, 1935—Showing hand driving of recovery drifts,"—what does that show?

A. That is a picture taken inside the drift after we got in a ways, and shows the spiling and men working.

Mr. Tinning: When it says "Cave-in of August 28—" that does not mean the photograph was taken on the 28th; it is taken at some later date?

A. Taken two or three days later. The bodies were recovered approximately September 3rd, I believe, and this work was some time prior to that.

Mr. Marrin: Q. This next photograph, "August 28, 1935 cave-in—Showing completed recovery drift, south side. Note concrete footing on lower right with reinforcing steel bent over—original tunnel posts on right,"—that is a picture of the recovery drift after it was completed, was it not?

The Court: You said there was about 50 feet of this?

The Witness: Your Honor, there was about 50 feet, as I recall it, in the arch; but the material spread out.

The Court: Oh, I see.

(Testimony of Thomas Moore Price.)

Mr. Marrin: The next photograph has a legend, "Cave-in of August 28,—Showing where cave-in broke surface of ground."

Q. What does that represent, Mr. Price?

A. That is a picture of the ground surface at the point where the cave-in material reached here, and where the normal ground sank down 10 or 15 feet.

Mr. Tinning: Made a pit in the surface?

A. Made a pit in the surface. [1337]

Q. A cone? A. Round.

The Court: Q. That was taken where?

A. That was taken from the surface, above the tunnel.

Mr. Marrin: We will offer all those as plaintiff's exhibit next in order.

(The six photographs were marked "Plaintiff's Exhibit No. 68.")

[Set forth in the Book of Exhibits at page 281.]

The Court: We will take a recess for a few minutes.

(Recess)

Mr. Marrin: I have here a letter from C. H. Fry, Superintendent of Safety, Industrial Accident Commission of the State of California, to Six Companies, dated September 1, 1935; and I offer that in evidence as plaintiff's exhibit next in order.

Mr. Wittschen: We object to that as incompetent, irrelevant and immaterial, not tending to prove any issue in the case, and on the further ground

(Testimony of Thomas Moore Price.)

that the Contractor agreed to be bound by the safety rulings of the Industrial Accident Commission.

The Court: Objection overruled.

Mr. Wittscben: Exception.

(The letter was marked "Plaintiff's Exhibit No. 69.")

Mr. Marrin: This letter reads as follows:

PLAINTIFF'S EXHIBIT NO. 69

Oakland, California,
September 1, 1935.

Six Companies of California,
Post Office Box 120,
Berkeley, California.
Attention Mr. T. M. Price, Project Manager

Gentlemen:

After conference this morning, with Mr. Wallace B. Boggs, District Engineer; and Messrs. Lippincott and Van Ormond, Consulting Engineers for Joint Highway District No. 13; it was the unanimous opinion that there should be another crosscut driven between the upgrade and downgrade tunnels, as near the face of the right-hand drift in the north tunnel as is practicable.

This work is to start at once, and be carried through as rapidly as possible, in order that there may be an emergency exit beyond the

(Testimony of Thomas Moore Price.)

present one, which is now at station 118+30 in the upgrade tunnel.

Yours very truly,

(Signed) C. H. FRY,
Superintendent of Safety,
Industrial Accident Commission of the State of California.

copy to Mr. Boggs

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 69. Filed April 29, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.[1338]

The Court: What is the history of the first drift that went in there?

Mr. Tinning: There were three adits in this tunnel, under the specifications, spaced about one-third—spaced so they divided the tunnel into four; and when this accident occurred, the Industrial Accident Commission asked that an emergency drift be put through; and it was; and it was later substituted for one of the regular adits.

Mr. Wittschen: It should be brought out that it added no additional work; it merely took the place—

Mr. Marrin: Well, Mr. Wittschen, you can bring that out on your cross examination.

The Court: Well, I developed this; I just wanted to follow it.

(Testimony of Thomas Moore Price.)

Mr. Wittschen: Don't you want to clear that up?

Mr. Marrin: Yes; I am going to ask him some questions about it.

Q. This adit that was ordered was a cross-tunnel,—a small tunnel between the two larger tunnels, Mr. Price? A. Yes.

Q. This cave-in did not extend back to the face of the tunnel, did it? A. No.

Q. And there was plenty of room to drive the cross-adit between the two tunnels back of the cave-in? A. Yes—Oh, yes.

Q. And was that adit driven? A. Yes.

Mr. Wittschen: Mr. Marrin, to clear that up—this is a good [1339] place; but, if you object, I won't press it—There was already an adit back of the cave-in; so this was just one further on to make two?

Mr. Marrin: Yes; there was one adit already driven back of the cave-in.

Mr. Wittschen: As part of the plans and specifications; and the second one was merely put in another place. There had been provision for it, but they had not got up to it?

Mr. Marrin: Yes.

Mr. Tinning: And the first adit was the one through which the men escaped when the slide occurred,—the men who were working on the face.

Mr. Marrin: That is correct, Mr. Tinning—the men who were back of the cave-in escaped through that adit, or got out.

(Testimony of Thomas Moore Price.)

I have a letter here, dated September 2, 1935, from C. H. Fry, Superintendent of Safety, Industrial Accident Commission of the State of California, addressed to Six Companies of California; and I offer that in evidence as plaintiff's exhibit next in order.

Mr. Wittschen: To which I make the same objection that was made to the preceding exhibit.

The Court: Same ruling.

Mr. Wittschen: Kindly note an exception; and I don't think I took an exception to the other ruling. Will you note an exception to that ruling, please?

(The letter was marked "Plaintiff's Exhibit No. 70.")

Mr. Marrin: This letter reads as follows:

PLAINTIFF'S EXHIBIT NO. 70

Oakland, Calif.,
September 2, 1935.

Six Companies of California,
Post Office Box 120,
Berkeley, Calif.

Attention Mr. T. M. Price, Project Manager

Gentlemen:

I have before me a copy of a letter dated September 1, 1935, from Six Companies of California, by T. M. Price, Project Manager, addressed to Mr. Wallace B. Boggs, District Engineer, Joint Highway District No. 13, 1448 Webster Street, Oakland, California, which

(Testimony of Thomas Moore Price.)

concerns certain changes in the concreting of the unlined portions of the excavated tunnels.

The plan as outlined will permit of concreting operations in much of the unlined portions of the tunnel without weakening the present timbering by trimming to present specifications.

This plan, or some other plan approved by the consulting engineers, which will give the same result, seems not only desirable but necessary.

In connection with the concreting operations or with repair operations, where removal of the arch segments or the posts is necessary, temporary supports, perhaps square sets, shall be provided in order that the removal of the segments or posts shall not throw undue stresses on the adjacent timbering.

The plan proposed is approved subject to the approval of the consulting engineers of the District and Six Companies of California.

Other plans, if any, will be given consideration.

Sincerely yours,

(Signed) C. H. FRY,
Superintendent of Safety,
Industrial Accident Commission of the State of California.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 70. Filed April 29, 1938. Walter B. Maling, Clerk. By. J. A. Schaertzer, Deputy Clerk. [1340]

(Testimony of Thomas Moore Price.)

Q. Prior to writing that letter, had Mr. Fry given you any orders with respect to the timbers in the tunnel?

Mr. Wittschen: Objected to as incompetent, irrelevant and immaterial, and not tending to prove any issue, and not binding on the District; and in order merely to acquaint your Honor of what has gone before: you will understand when this order was given, permitting the section to be dropped 10 inches, the Contractor agreed he would do that without any extra expense; in other words, [1341] it was a concession upon the part of the District to permit it; so it does not prove anything in the case.

Mr. Marrin: The defendants, themselves, on cross examination of Mr. S. D. Bechtel, introduced in this case all the orders from the Industrial Accident Commission in respect to the modified arch, and went into this to a considerable extent. We desire to make the record on that subject complete; and we desire to show all of the orders, both verbal and written, issued by the Commission, in connection with this matter.

Mr. Wittschen: The point of my objection is this: Counsel, himself, stated the order of the Commission which we introduced and which was the order signed by Mr. Reardon and Mr. MacDonald is the ultimate fact. All these letters that led up to the order don't prove anything.

Mr. Marrin: We propose to show that, immediately following the cave-in, Mr. Fry, Superin-

(Testimony of Thomas Moore Price.)

tendent of Safety, ordered this plaintiff not to remove or reset or trim any of the timbers in the tunnel.

The Court: He was prompted, in doing that, by this disaster, I take it.

Mr. Marrin: Yes, your Honor.

The Court: I will allow it.

Mr. Wittschen: Exception.

The Witness: May I have the question, please?

(Pending question read by the reporter.)

The Witness: A. Yes.

Mr. Marrin: Q. What were they?

Mr. Wittschen: Same objection.

The Court: Same ruling.

Mr. Wittschen: Exception. [1342]

The Witness: A. Mr. Fry was there, daily, for the few days after the cave-in; and he told me not to do anything at any time without first taking the matter up with him; and by anything, I mean any work in the tunnel without getting his approval; and in line with this, I gave him this copy—showed him this copy of the proposal for lowering the arch; and he told me at that time not to move or reset or trim any timbers in the tunnel at all until the whole thing had been clarified, and some definite plan had been agreed upon by all the parties in question.

Mr. Marrin: Q. I show you Defendant's Exhibit "OO," Mr. Price, dated September 1, 1935. Is that the letter that you showed Mr. Fry, and to which he referred in his letter? A. Yes, sir.

(Testimony of Thomas Moore Price.)

Mr. Marrin: That letter has been read into evidence, if the Court please, and it is the letter which was introduced by the defendant and which the plaintiff wrote to Mr. Boggs and suggested a method of concreting the tunnels which would avoid the removal or trimming of any more timbers.

Q. Mr. Price, I might ask you what you did after sending the letter of September 1, 1935, which is Defendant's Exhibit "OO," to Mr. Boggs, stating or suggesting the modification of the arch to obviate the removal of timbers—what work was carried on after that?

Mr. Wittschen: They modified that by a letter two days later.

Mr. Marrin: I am asking what he did after he wrote a letter which has been introduced in evidence by you.

Mr. Wittschen: Yes.

The Witness: A. We continued to concrete in the south tunnel, where we were able to do so without trimming or touching or disturbing in any way the timbers.

Mr. Marrin: Q. There were parts of the tunnel in which you were carrying on the concreting operations without trimming or removing timber? [1343]

A. Yes; in the south tunnel, which had not been affected by the cave-in in the north tunnel. We were able to pour concrete up to something like the first cross-adit, about Station 118, I believe, without any timber interference. The timber in that section had not intruded.

(Testimony of Thomas Moore Price.)

Q. Did you take any action looking toward installing a modified arch in the tunnel?

A. Yes, we did. I did not take any action in consulting with the Engineer, because Mr. O. W. Petersen had been appointed by the Six Companies of California to conduct negotiations with the Engineer, and, on his advice—

Q. Mr. Price, defendants have introduced in evidence as their exhibit "RR" a letter dated September 5th, addressed to Six Companies of California, Field Office, Berkeley, California, attention Mr. T. M. Price, Project Manager, signed "Wallace B. Boggs," and it reads:

"Dear Sir:

"I am advised by you and Mr. O. W. Peterson, your engineer, that Six Companies of California, the contractor on the Broadway Tunnel Project, is planning to proceed with the pouring of concrete in tunnel bores using forms which will result in a permanent reinforced concrete tunnel lining which does not conform to the plans and specifications for the work.

"You are hereby ordered to cease and desist in any such procedure as the same is entirely without authorization by this District and is a direct violation of your contract with the District. You are further advised that such work must not be performed and all steps on your part to perform such work as you have indicated you intend to perform, should immedi-

(Testimony of Thomas Moore Price.)

ately cease if the work is now in progress, and that any concrete tunnel lining placed in accordance with your proposal will be rejected by the District and will be ordered removed.

"Yours very truly,

(Signed) WALLACE B. BOGGS,

District Engineer.

[1344]

What work were you doing that Mr. Boggs stopped by that letter?

A. Mr. Peterson advised me—

Mr. Wittschen: Pardon me. This does not call for any advice by Mr. Peterson.

The Witness: I was modifying the concrete forms, cutting them down, and starting to modify the concrete forms by cutting them down to a smaller size, so they would be all right on the modified section.

Mr. Marrin: Q. On receipt of that letter, did you stop that work? A. Yes.

Mr. Tinning: Mr. Marrin, let's see if we understand this. I think the situation there was that it was more than cutting down the forms. He notified the District that they were going to pour concrete in modified form at that time. Isn't that what you were actually planning to do—just to refresh your memory?

The Witness: No; that was not correct. It was quite a job to cut down those forms, and we took three or four days' time, with blow torches, getting

(Testimony of Thomas Moore Price.)

the forms out of the tunnel and getting them back in again; and it took several days to do that; and I attempted to start this work, with the hope the Engineer would not stop me.

Mr. Marrin: Q. When you received that letter, did you stop this work? A. I did.

Q. What did you do thereafter, Mr. Price, in connection with the work, from about the 5th of September to the 14th of September, 1935?

A. We did not do a great deal. We were at a loss to know what to do. We had been told by one authority we could not change the timbers, and we had been told by another that we had to change the timbers; and we shut down for a few days, to find out what the situation would develop into before we proceeded.

Mr. Marrin: I have here a copy of a letter from Six Companies of California, T. M. Price, Project Manager, to the Industrial [1345] Accident Commission, dated September 14, 1935; and I will offer that in evidence as plaintiff's exhibit next in order.

Mr. Wittschen: We make the same objection: that we made to all these letters between the plaintiff and the Industrial Accident Commission; we were not parties to them; and the plaintiff had agreed to abide by all safety orders, and it proves no issue in the case.

The Court: Did you get a copy of these letters?

Mr. Wittschen: I don't think so.

Mr. Marrin: This is a letter, if your Honor please, transmitting to the Commission a copy of

(Testimony of Thomas Moore Price.)

the letter "Defendant's Exhibit SS," which was introduced.

The Court: Did you have knowledge of this?

Mr. Wittschen: No.

Mr. Smith: We did not, your Honor.

The Court: You will have to connect up the proper foundation.

Mr. Tinning: If the Court please, that applies to several of the others.

The Court: Well, for some reason or other, I assumed—

Mr. Wittschen: They may have sent something—

The Court: —I assumed they did. They would have to have some knowledge of them, to be bound by them in some fashion.

Mr. Marrin: Well, when the plans and specifications were made, they were drawn by the defendant itself; the plaintiff was required to comply with the rules of the Industrial Accident Commission.

The Court: Yes.

Mr. Marrin: This is simply showing—It has been shown here, by the evidence, part of which has been introduced by the defendants themselves, that this matter was taken up with the Commission, and [1346] certain orders were issued; and this letter is simply for the purpose of showing that a copy of Defendant's Exhibit "SS" was sent to the Commission; and Defendant's Exhibit "SS" is the letter of September 14, 1935.

Mr. Wittschen: From whom?

(Testimony of Thomas Moore Price.)

Mr. Marrin: From T. M. Price to Mr. Wallace Boggs, District Engineer; and it read as follows:

"We desire to acknowledge receipt of your letter of the 5th instant.

"Six Companies of California suggested the alternative plan outlined in our letter dated September 1st for concreting the tunnels for the purpose of making the construction operations safer and minimizing the damages which would result from exactly following the plans and specifications.

"However, in view of the instructions contained in your letter, we shall proceed immediately to concrete the tunnels in strict compliance with the plans and specifications.

"By doing so we do not waive any of our rights or any claims which we now have, or may hereafter have, against the District and you are notified that we shall claim and hold the District responsible for all damages resulting from this procedure.

"Very truly yours,
SIX COMPANIES OF
CALIFORNIA,
By (signed) T. M. PRICE,
Project Manager."

The Court: I will allow that letter.

Mr. Wittschen: This letter is already in.

Mr. Marrin: That is a letter that is in, your Honor. This letter we are offering now is the letter

(Testimony of Thomas Moore Price.)

from Mr. Price, of the same date, transmitting to the Industrial Accident Commission a copy of the letter he wrote to Mr. Boggs.

The Court: I may clear up this situation; and this is subject [1347] to correction; the conduct and the action on the part of the Industrial Accident Commission, to enforce the law as they saw it, under the plans and specifications, the ultimate fact they did it cannot inure to the benefit of either side in this case, as I see it.

Mr. Marrin: Well, I think it can, your Honor.

The Court: Well, point it out.

Mr. Marrin: We take the position, if the Court please, that the accident in the tunnel was an unavoidable accident.

The Court: Unavoidable accident?

Mr. Marrin: That is right.

The Court: Now, let's see. Let's check as we go along. There were sections of this tunnel that indicated clearly what you would have to do after this unfortunate accident, weren't there?

Mr. Marrin: I am not sure I understand your Honor.

The Court: After this accident, you were under their rules, that, in substance and effect, that you must support this in another way—Is that true?

The Witness: We must do something that would be agreeable to all and accepted by all the parties concerned.

The Court: And the purpose of that was for safety, was it not?

(Testimony of Thomas Moore Price.)

The Witness: Yes, sir.

The Court: And the probabilities are: if, while they could not foresee what this unfortunate disaster was, probably if that had been done in the first place, the disaster would not have occurred?

The Witness: Possibly not.

The Court: It is well to analyze these situations, unless I get the wrong viewpoint.

Mr. Marrin: I don't think your Honor is clear on the point we are offering that letter on. [1348]

Mr. Wittschen: Well, what happened was this: It is a fact there was a request to permit the timbers to intrude there and we consented to it, and we got the consent of the United States Government, which was interested, but the present matter before the Court is on a little different situation. Mr. Boggs wrote a letter—Mr. Price wrote a letter to Mr. Boggs, that is Exhibit SS, in which he said they will proceed to do this in accordance with the plans and specifications, either trimming them or resetting them; he said, "We will proceed."

Now, the letter that counsel is now trying to introduce is a letter from Mr. Price to the Industrial Accident Commission, enclosing to them a copy of the letter of Mr. Boggs. I say that anything he does with the Industrial Accident Commission is not binding on us. It does not tend to prove any issue, and the specifications expressly state that the contractor shall abide by all the safety rules of the Commission.

(Testimony of Thomas Moore Price.)

The Court: I made a statement here. We are now concerned with communications that went from the Industrial Accident Commission—

Mr. Wittschen: To the contractor.

The Court: To the contractor, and, I will say, a representative of the District, so we won't miss anybody.

Mr. Wittschen: Some of them are not.

The Court: When he has acknowledged it it is clear in my mind that he is limited in his authority, and other conditions. Now, I am speaking generally, and I want to clear my own mind up on this, if it is possible to do so. It may not be directly on the subject where we are dealing with the enforcement of the law as they saw it, keeping in mind the plans and specifications here. They were developing that for what purpose? [1349]

Mr. Wittschen: Safety of the workmen, and nobody else.

The Court: I indicated that as a legal matter. I did not see how either side could take advantage of that.

Mr. Marrin: May I make a statement, your Honor?

The Court: It may be I am in error, I don't know.

Mr. Marrin: May I make a statement?

Mr. Wittschen: My answer to your Honor's statement, it was purely for the safety of the workmen; in other words, there were other ways in which

(Testimony of Thomas Moore Price.)

they could have done that. They could have put steel frames under it to support it, but as a practical matter, and without undue cost, they said in the ventilating section, because it was up near the roof, why, they suggested we let them intrude 10 inches. We said all right, we will do that. That was so they would not have to be removed. But if that had not been acceptable and it was a matter of finishing the tunnel, there were other ways in which you could make a tunnel of that size, by going to other methods of operation.

Mr. Marrin: May I make a statement, your Honor? I do not agree, of course, with Mr. Wittschen's position in this matter.

The Court: I do not expect you to, so don't be disappointed.

Mr. Marrin: You asked the witness, for instance, just a moment ago, pardon me for going back to this, but I want to clear the thing up in your mind if I can, as to whether this would have happened if we followed the method pursued by the Industrial Accident Commission.

The Court: I limited that to the thought that the conduct of the Commission in enforcing the law in relation to the safety—I cannot see where either side can take advantage of that in the issues before me. Maybe I do not make myself clear.

Mr. Wittschen: We don't take any advantage of it. It was [1350] the contractor's duty to build it. He was doing the constructing.

(Testimony of Thomas Moore Price.)

The Court: You are offering it, yourself.

Mr. Wittschen: No, I think your Honor has not got my thought. He was the one who was doing the constructing, and the orders of the Commission were paramount as to the method, not as to the result, and we are attempting to say to your Honor that they should have complied with those.

Mr. Marrin: I would like to state, if the Court please, in the first place none of these orders resulted from anything which occurred prior to the time of the cave-in. The contractor was going along with the excavating, and with the retimbering, and resetting, without any objection from the Industrial Accident Commission, or the district, or the district engineer, or anybody. The cave-in occurred which we claim was an unavoidable accident. Thereafter the contractor, in order to attempt to get this tunnel lined, without danger to workmen, without danger of further cave-in, suggested to the district a method of modification. Immediately when the cave-in occurred the Industrial Accident Commission stopped any resetting or retimbering or timbering. It was necessary, therefore, in order to comply with this order, to work out some new design for doing this. The plaintiff promptly attempted to do this and the District wrote a letter to the contractor and refused to permit the modification which was suggested. When the contractor went ahead and attempted to work under this modified plan the District Engineer issued a Cease and

(Testimony of Thomas Moore Price.)

Desist Order, and then, as your Honor will remember, due to the intervention of various orders by the Industrial Accident Commission, finally, after the District insisted the contractor go ahead in strict accordance with the specifications, it was brought to the point where the Commission ordered both the District and the contractor before [1351] it for a hearing. As a result of that, and not until that, did the District consent to any action which would permit the work to proceed. Thereafter—

Mr. Tinning: Mr. Marrin, you agreed to do that.

Mr. Marrin: Now, Mr. Tinning, may I make my statement ?

The Court: I want to give you a full opportunity.

Mr. Marrin: Thereafter the contractor proceeded on the basis of the Commission's order to make this modified section, although the District did not give any formal consent to this until November 8, 1935, and notified the contractor, as we will show by another letter here, that it was proceeding at its own risk until a formal consent was given. Now, all these things, your Honor, caused a great deal of delay in the performance of this work. They caused the work to be shut down. They caused a lot of additional work in connection with the tunnel, and they caused a great delay in the contractor's progress in completing these tunnels, and is our point that when the work is shut down by the order of the State authorities, as a result of

(Testimony of Thomas Moore Price.)

something which the contractor has no control, that this delay—

The Court: You are assuming a fact not in evidence there, that you had no control; you had complete control, did you not?

Mr. Wittschen: Yes.

Mr. Marrin: Well, we had control of the work but an accident happened which is not due to our fault.

The Court: Oh, I see.

Mr. Marrin: It resulted in great delay in the work. It is something which is beyond our control and for which we are entitled to an extension of time, and the District and the District Engineer knew all about these facts when they denied the extension of time, and it is our point that when the work was shut down by [1352] order of the State authorities, as a result of something over which the contractor had no control, it was a delay.

The Court: You are assuming it was something you had no control over.

Mr. Marrin: We had control of the work, but it was an accident that happened, not due to our fault.

The Court: Assuming your position to be correct, was there a delay of the work to any appreciable extent?

Mr. Marrin: Oh, yes, a very serious delay of the work, as has already been testified in this case,

(Testimony of Thomas Moore Price.)

because of the fact that the ground encountered was not of the character which was expected the contractor shut down the further excavation on August 21 in order to attempt to get the concrete up. Then when this accident occurred the work that Mr. Price has just testified to was actually shut down. We were between two fires, the order of the Industrial Accident Commission on one side saying you cannot remove or set back the timbers, and the order of the Commission that you may do so and so, but for the period at least from September 1 until after the order of the Commission on the 24th the contractor did not know what to do.

The Court: All of these difficulties developed when this tunnel was 618 feet on one side, and what is the measurement on the other?

Mr. Tinning: There was about 900 or a thousand feet.

The Court: In any event, all of these difficulties that we have discussed arose out of the portion of the tunnel in which the timber came out?

Mr. Marrin: That is true.

The Court: Very well. You do not need to answer this if you do not wish. Why was not that cemented? [1353]

Mr. Marrin: That is just what we have been trying to prove to your Honor through the testimony of this witness as to the difficulties that we had with the concrete plant which we had contemplated using, and the length of time after that it

(Testimony of Thomas Moore Price.)

took to develop a new concrete plant in order to line this section. Furthermore, if your Honor please, we have shown here through the representation of the geological report that good self-supporting ground might be anticipated, and if we had been in that kind of ground there would have been absolutely no necessity for lining this tunnel at all.

The Court: I see I am getting very little help in solving the matter in my mind. However, the only way that I can see that we can do is allow counsel to have a record and protect your legal rights, even though we are here for so long.

Mr. Wittschen: There are two or three things that are confusing. The first one is when this cave occurred, the ground had been standing for six or seven months. The orders of the Industrial Accident Commission that came in after the cave-in were not formally made at the time of this letter; they were made some 20 days thereafter, if my memory serves me right. It is perfectly true that the District Engineer did not formally say "You go ahead until another 20 or 30 days," and in the meantime they went ahead, they did not stop, they did not wait for a formal order of the District Engineer; as soon as they got the Industrial Accident Commission's order they proceeded to drop the section 10 inches, in connection with correspondence between Mr. Tinning and Mr. Thelen, in which they said we will do that, and we won't charge anything more for it, or make any extra claim; in other

(Testimony of Thomas Moore Price.)

words it was a concession to them to let them drop in this tunnel. Mr. Marrin is claiming that there was a delay of a certain length of time while [1354] the Industrial Accident Commission made its order.

The Court: You answer that by saying the engineer said, "We will let you do this and let you take all risks in the work under your contract." I am afraid I cannot help either side.

Mr. Marrin: May this be allowed in?

The Court: It may go in.

Mr. Wittschen: I suppose we ought to take an exception.

Mr. Marrin: This letter is dated September 14, 1935, and it reads:

PLAINTIFF'S EXHIBIT NO. 71

September 14, 1935.

Industrial Accident Commission,
State Building,
San Francisco, California.
Attention Mr. C. H. Fry, Superintendent of Safety

Gentlemen:

We enclose herewith copy of a letter dated September 5, received from the District Engineer of Joint Highway District No. 13; also a copy of our reply dated September 14.

These copies, together with this letter, are in reply to a letter from your Mr. Fry, dated September 2, 1935, in which it is stated that a

(Testimony of Thomas Moore Price.)

proposed plan for lowering and narrowing the concrete forms, in order not to disturb the present timbering in the tunnel, "or some other plan approved by the consulting engineers, which will give the same result, seems not only desirable but necessary".

This information is given to you in order that the Industrial Accident Commission may be fully informed of the present status of this matter.

For your information, the specifications in paragraph E, section 32, page 60, state that "Timbers found to project within the concrete lines shall be removed and reset before concreting".

Very truly yours,
SIX COMPANIES OF CALIFORNIA,
By T. M. PRICE,
Project Manager.

P:C

[Endorsed]: U. S. Dist Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 71. Filed April 29, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

And the letter enclosed was Defendant's Exhibit SS, which I have [1355] just read.

(The letter was marked "Plaintiff's Exhibit No. 71.")

71.")

(Testimony of Thomas Moore Price.)

Mr. Wittschen: In order to keep the record straight, no copy of that was sent to the District.

Mr. Marrin: I think that is right.

Q. Now, Mr. Price, you then received from the Industrial Accident Commission on September 19, 1935, an order to show cause, which was introduced in evidence as Defendant's Exhibit EEE, which, without reading the whole order, provided that all timber in both the north and south tunnel shall not be removed and reset before concreting, and the concrete forms may be lowered sufficiently to clear encroachments in the tunnel section, or some other plan whereby the timbering will not be disturbed, may be submitted to the Commission for approval.

A. Yes.

Q. After you received that letter from the Commission did you stop work?

A. We had never started on the work involved in this moving or resetting of the timbers; we had resumed concreting the south tunnel in the sandstone section where we were able to do so, and I believe we had made one concrete pour somewhere in the cherts section where there was one place of approximately 20 feet where the timbers had not intruded sufficiently to stop pouring of the concrete in the south tunnel.

Q. Thereafter, as was brought out in the cross examination of Mr. S. D. Bechtel, the Commission issued an order on September 24, 1935, authorizing the placing of the modified section of the arch?

A. Yes.

(Testimony of Thomas Moore Price.)

Q. What did you do after you received that order, Mr. Price?

A. We started lining the tunnels with concrete in conformance with the section which was approved by the District Engineer; by "approved," I mean he approved the lining of it as conforming with the [1356] Commission's order.

Q. I show you Defendant's Exhibit KKK, and ask you if you will explain to the Court what that modification was of the arch which was permitted by the Commission in its order?

A. This is a cross section of the tunnel showing the concrete as designed by the dotted line, the outside dotted line, with a notation on it, "Neat line of type 'A' Section," right there—

The Court: That is the original?

A. The original; the inside section shows the modified line, the outside of the modified section, and this shows the inside of the modified section; that shows dropping the arch 10 inches, and contracting the side walls six inches at some points above the floor line.

Q. No change in the floor?

A. No change in the floor.

Q. You did that to overcome your timber problem?

A. The timber which had intruded down into the concrete section in the cherts formation.

Mr. Marrin: Q. Did that affect the width of the roadway at all? A. No, it did not.

Q. Does this change which you have just pointed

(Testimony of Thomas Moore Price.)

out in this diagram show the total extent of the changes which were made? A. Yes.

Mr. Marrin: Is that clear to your Honor?

The Court: Yes.

Mr. Marrin: Q. After you received the order of the Industrial Accident Commission of September 24, 1935, you proceeded to install the arch, the modified arch?

A. Yes, we constructed timber forms and started pouring the concrete on the modified section.

Mr. Marrin: Now I have here a letter dated October 3, 1935, from Wallace B. Boggs, District Engineer, to the Six Companies of California, which I offer in evidence as Plaintiff's Exhibit next in order. This letter reads as follows [1357]

PLAINTIFF'S EXHIBIT NO. 72

Joint Highway District No. 13 of the
State of California
Oakland, California,
October 3, 1935.

File: Broadway Tunnel Lining.
Six Companies of California,
Field Office,
Post Office Box 120,
Berkeley, California.

Attention of Mr. T. M. Price, Project Manager

Dear Sir:

On October 2, 1935, you poured concrete tunnel lining with forms which do not conform to

(Testimony of Thomas Moore Price.)

the Type "A" section as set forth in the plans.

You are advised that no authorization has been received from the Government Engineer for the placing of the concrete tunnel lining as you placed it on October 2, 1935, and that such lining is subject to rejection in the event such authorization is not received from the Government Engineer.

Yours very truly,

(Signed) WALLACE B. BOGGS,
District Engineer.

WBB/VE

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 72. Filed April 29, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

(The letter was marked "Plaintiff's Exhibit 72.")

Mr. Wittschen: Mr. Marrin, will you stipulate that shortly thereafter or sometime thereafter the Government Engineer gave his approval and they never were required to remove any of that lining, which was the purpose of that letter?

Mr. Marrin: We were not required to remove it, but we never received any formal permission from the District Engineer until November 8, 1935.

Mr. Wittschen: But you went right ahead and put it in?

(Testimony of Thomas Moore Price.)

Mr. Marrin: We went right ahead and put it in in order to get the work done.

Mr. Wittschen: You took none out?

Mr. Marrin: We did not have to take it out, but we took the risk of doing it.

The Court: He recognized he took risk, but he followed it up by saying no.

Mr. Marrin: We did not have to take it out.

Mr. Wittschen: It was simply a matter of waiting for the [1358] Government's approval.

Mr. Marrin: Q. Mr. Price, there was introduced in evidence in connection with the witness S. D. Bechtel's cross examination Exhibit MMM, of which I show you a copy. Are you familiar with that? A. Yes.

Q. You received that letter on or about November 8, 1935? A. Yes.

Q. Is that the first formal permission you received from the District Engineer to place this concrete in this manner? A. Yes.

Mr. Tinning: It was a complete approval of what had been done.

Mr. Marrin: It was the first permission they received from Mr. Boggs.

Mr. Tinning: The first written or formal.

Mr. Marrin: I do not think he ever committed himself otherwise.

Mr. Tinning: Your question says "formal", doesn't it?

(Testimony of Thomas Moore Price.)

Mr. Marrin: The first written approval. Was it the first permission of any kind?

A. Yes, that I had received.

Q. During this time you had been proceeding with the pouring of concrete in the tunnels, had you not? A. Yes.

Q. Will you state on what date you completed the pouring of concrete in the south tunnel, that part of the south tunnel which had been excavated at the time of the cave-in?

A. As a matter of fact, we did not complete the pouring of that section until February 29, 1936. As a matter of practicability we completed it about the 23rd of November, 1935, leaving a portion there in which to conduct operations, an unlined portion.

Q. By that you mean you left a small unlined portion near the face so that you could recommence the excavating operation?

A. Yes. That, however, has been gunnited.

Q. Will you state on what date you completed concreting of the north [1359] tunnel which was excavated at the time of the cave-in of August 28, 1935?

A. Approximately on January 15, 1936.

Q. When was the excavation resumed in the south tunnel?

A. The excavation was resumed in the south tunnel at station 124+57 on February 2, 1936.

Q. When was excavation resumed in the north tunnel? A. December 22, 1935.

(Testimony of Thomas Moore Price.)

Q. How long was the excavation carried on by Six Companies thereafter in the tunnels?

A. I wish to make a correction in the previous statement in the south tunnel, if I may.

Q. Yes, surely.

A. The date that I gave you was the core excavation. In the south tunnel we proceeded to excavate the tunnel by constructing side wall drifts without doing any core excavation until we contacted and intercepted the drifts which had been driven from the east end. That work was done prior to any core excavation in the south tunnel.

Q. When did you commence that work?

A. That work was commenced on November 26, 1935, approximately.

Q. From then on until late in February, which you gave us before, you were excavating drifts in the south tunnel?

A. Yes, we did not do any work in the south tunnel but excavate side wall drifts through to where we contacted the east portal drifts.

Q. And you contacted those two east portal drifts in February of 1936? A. Yes.

Q. And thereafter did you excavate the south tunnel by the wall plate system?

A. We went back there again to where we had started to drift and excavated the core and followed up with the concrete lining; after we reached the wall plate drift from the east end then we proceeded to drive the tunnel by the wall plate drift method.

(Testimony of Thomas Moore Price.)

Q. When you resumed excavation in the north tunnel what system was followed there?

A. The wall plate drift system. [1360]

Q. Then did you continue the excavation continuously thereafter in the two tunnels—for how long did you continue continously?

A. The excavation was continued in the south tunnel without interruption and in the north tunnel without interruption until February 22, 1936.

Q. Why did you stop at that time?

A. We experienced a cave-in in the north tunnel.

Q. And after the cave-in was cleared was work thereafter resumed in those tunnels? A. Yes.

Q. Will you state the date on which your work was resumed in the south tunnel?

A. Work was resumed in the south tunnel on March 26, 1936.

Q. In which tunnel did the cave-in occur?

A. In the north tunnel.

Q. Would you state when work was resumed in the north tunnel after the cave-in of February 22nd?

A. Approximately on the 5th to 9th of May, I have it here. I presume the first excavation was made on the 9th of May.

Q. 1936? A. Yes.

Q. Was the excavation carried on then continuously in both tunnels? A. Yes.

Q. What was the character of the ground in the tunnel which was encountered after the resumption of excavation following the first cave-in and up till June 13, 1936?

(Testimony of Thomas Moore Price.)

A. It continued heavy and non-uniform somewhat similar to the ground which we had previously passed through.

Q. Was any of it self-supporting? A. No.

Q. Mr. Price, during the time that you were employed by Six Companies of California, who set the lines and grades of the tunnels in which you worked in constructing the tunnel?

A. The Six Companies of California engineers.

[1361]

Q. Who set the lines and grades on the outside work?

A. The Highway District No. 13 engineers.

Q. Do you know what lines and grades, if any, the District set in the tunnel during that period?

A. No, I am unable to say. I saw their men working back behind us at various times, but they never did any work which helped us in any way. The tunnels were driven and the bore was made by work done by our own engineers. I am unable to state what they did.

The Court: Were they in your way?

A. No, they were not in our way. They were behind us.

The Court: We will take an adjournment now until Tuesday morning at ten o'clock.

(An adjournment was here taken until Tuesday, May 3, 1938, at ten o'clock a. m.) [1362]

(Testimony of Thomas Moore Price.)
Tuesday, May 3, 1938;
10 O'Clock A. M.

THOMAS MOORE PRICE

Direct Examination (continued)

Mr. Marrin: If your Honor please, in connection with Mr. Larson's testimony, there appears a statement, on pages 313 and 314 of the transcript, in which he testified, in answer to certain questions of Mr. Tinning, that at the time he examined the tunnels on August 28, 1935, the east portal drifts were driven all the way through. That was an error; and the other side is willing to stipulate the transcript may be corrected.

Mr. Tinning: Yes.

Mr. Marrin: To show they were not driven through at that time.

Mr. Tinning: But, in making this stipulation, it may be understood that there were several hundred feet of portal drifts excavated on the east portal, but none of them had penetrated through to the west portal excavation at that time.

Mr. Marrin: Yes.

Mr. Tinning: The question was with respect to the inspection of the Orindan formation in those tunnels; but, in so far as Mr. Larson's answer applies to the portion that he saw, why, it will be understood it will stand,—his answers.

(Testimony of Thomas Moore Price.)

Mr. Tinning: It was a mutual mistake as to how far that work had progressed.

Mr. Marrin: Yes.

Q. Mr. Price, I show you a tabulation entitled "Work Completed by Six Companies of California." Was that prepared under your direction?

A. Yes, sir.

Q. From the records of Six Companies of California? A. Yes, sir.

Q. To the best of your knowledge, it is correct?

A. It is. [1363]

Q. Will you state what that shows?

A. That shows the work completed by Six Companies of California, on a footage basis; it shows the excavation in the tunnel,—the portions where the excavation was completely performed, where only the ring excavation was performed, the wall plate drifts, the east end drifts, the rings on the east end, and the excavation on the east end.

Q. That was the amount completed up to June 13, 1936? A. Yes.

Mr. Tinning: May I ask a question, here, Mr. Marrin, in the interest of time?

Mr. Marrin: Surely.

Cross Examination

Mr. Tinning: Apparently, from the tabulation, the north tunnel shows 2,875 feet. You have added drifts and ring excavation and completed excava-

(Testimony of Thomas Moore Price.)

tion, so that you have practically put the tunnel through.

The Witness: That is the complete work.

Mr. Tinning: I don't think you understood me, Mr. Price. The figures at the bottom of the totals here show 2,875 feet. You have added the rings, the wall plate drifts—I think that should be made clear.

The Witnes: Yes. In other words, we had done some work in every portion of the tunnel; that is the station starting at the beginning of the tunnel and the station at the end.

Mr. Tinning: Q. I understand; but you have a total, under "Excavation," which might be understood that you excavated 2,875 feet.

A. Well, that would not be correct. The excavation for the tunnel is that portion in the first line, from station 111+43.45 to 129+86, a total of 1,843.45 feet on the west end; and the full excavation on the east was from 139+48 to the end, a total of 70.16 feet.

Q. Yes. So, it really might be misleading, unless it was explained that you have added all the lineal feet of drift, you might have [1364] built on both sides, and, as a matter of fact, you have about 1,900 feet of excavation completed, and the rest was drifts partially excavated?

A. Yes. On the second page, the same procedure is carried all the way through on each item of work,—the ventilating concrete—here, we have, on

(Testimony of Thomas Moore Price.)

the second page, that no concrete placed at all for a distance of 1,000 feet—

Q. The point is: These totals are not totals of the same thing; they are the result of a numerical addition of the various footages of drifts and so on? A. Yes.

Q. That was shown on the diagram?

Direct Examination (resumed)

Mr. Marrin: These totals are the total length of the tunnels? A. Yes, they are.

Q. The detail shown above shows the amount of excavation which was carried on in that part of the tunnel which was excavated? A. Yes.

Q. Does that also show the amount of the concrete placed, Mr. Price?

A. Yes; it shows the timbering, also; the excavation above the timbering; then the concrete rings; then the grouting and the ventilation concrete, in each tunnel.

Mr. Marrin: I offer that in evidence.

Mr. Tinning: Subject to checking against the figures,—I assume they will be correct; and also subject to Mr. Price's explanation that the totals do denote different classes of work in each case?

Mr. Marrin: Surely.

The Court: This is off the record.

(Discussion, off record.)

The Court: We will proceed.

(The document was marked "Plaintiff's Exhibit No. 73.")

(Testimony of Thomas Moore Price.)

PLAINTIFF'S EXHIBIT NO. 73

Work Completed by Six Companies of California

Excavation			
North Tunnel			
Excavation completed	111+42.55	129+86	1,843.45
Ring excavation	129+86	130+44	58.
Wall plate drifts, both sides	130+44	131+37	93.
Wall plate drift, right side only	131+37	132+36	99.
East wall plate drifts, both sides	132+36	139+35.3	699.30
Ring excavated	139+35.3	139+48	12.70
Excavation completed	139+48	140+18.16	70.16
Total			2,875.61
South Tunnel			
Excavation completed	111+53.25	135+79	2,425.75
Ring excavated	135+79	136+18	39.
East wall plate drifts, both sides	136+18	140+08	390.
Ring excavated	140+08	140+25	17.
Excavation completed	140+25	140+97.68	72.68
Total			2,944.43
Timbering			
North Tunnel			
Open cut, no timbering	111+42.55	111+58	15.45
Full timbering	111+58	129+80	1,822.
Ring timber placed	129+80	130+43	63.
Wall plate only	130+43	130+70	27.
Wall plate drifts, both sides	130+70	131+37	67.
Wall plate drift, right only	131+37	132+36	99.
Wall plate drifts, both sides	132+36	139+35.3	699.30
Full timbering	139+35.3	139+78	42.70
Open cut, no timbering	139+78	140+18.16	40.16
Total			2,875.61

(Testimony of Thomas Moore Price.)

South Tunnel			
Open cut, no timbering	111+53.25	111+68	14.75
Full timbering	111+68	135+64.5	2,396.50
Ring timber placed	135+64.5	136+16.50	52.
Wall plate only	136+16.5	136+76	59.50
Wall plate drifts, both sides	136+76	140+08	332.
Full timbering	140+08	140+51	43.
Open cut, no timber	140+51	140+97.68	46.68
Total			2,944.43
Concrete Lining			
North Tunnel			
Complete lining	111+42.55	128+49.60	1,707.05
Footings, both sides	128+49.60	129+15.00	65.40
Footing, left side only	129+15	129+16	1.00
No concrete placed	129+16	139+39	1,023.00
Complete lining	139+39	140+18.16	79.16
Total			2,875.61
South Tunnel			
Complete lining	111+53.25	134+28	2,274.75
Footings, both sides	134+28	135+03	75.
Footing, right side only	135+03	135+08	5.
No concrete placed	135+08	140+10	502.
Complete lining	140+10	140+97.68	87.68
Total			2,944.43
Grouting			
North Tunnel			
Grouted	111+42.55	122+50	1,107.45
Not grouted:			
Schedule "A"			1,089.16
Schedule "B"			679.00
Total			2,875.61

(Testimony of Thomas Moore Price.)

South Tunnel			
Grouted	111+53.25	122+00	1,046.75
Not grouted:			
Schedule "A"			581.68
Schedule "B"			1,316.00
Total			2,944.43
Ventilation Slabs			
North Tunnel			
Lower Deck and Side Walls			
April, 1936	111+42.55	112+49	106.45 L. Ft.
May	112+49	117+38	489.00
June	117+38	120+27	289.00
Not concreted	120+27	140+18.16	1,991.16
Total			2,875.61
Upper Deck			
April, 1936	111+42.55	112+73	130.45 L. Ft.
May	112+73	117+31.5	458.50
June	117+31.5	120+16	284.50
Not concreted	120+16	140+18.16	2,002.16
Total			2,875.61
South Tunnel			
Lower Deck and Side Walls			
April, 1936	111+53.25	111+83.2	29.95 L. Ft.
May	111+83.2	117+34.7	551.50
June	117+34.7	120+38	303.30
Not concreted	120+38	140+97.68	2,059.68
Total			2,944.43

(Testimony of Thomas Moore Price.)

Upper Deck			
April, 1936	111+53.25	111+88.2	34.95 L. Ft.
May	111+88.2	117+31.8	543.60
June	117+31.8	120+35	303.20
Not concreted	120+35	140+97.68	2,062.68
Total			2,944.43

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plaintiff's Ex. No. 73. Filed May 3, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Marrin: I have here a poster which shows the modified sections of the tunnels about which we were talking on Friday, and shows the sections of the tunnels in which the modified section was [1365] installed and the section in which the regular concrete lining was installed; and also shows the places where the concrete lining was placed with wood forms and the place where it was placed with steel forms; and I want to examine the witness with respect to that, and I would like to offer that in evidence as plaintiff's exhibit next in number.

Mr. Tinning: Subject to check as to accuracy of distances.

Mr. Marrin: Surely.

(The document was marked "Plaintiff's Exhibit 74.")

Mr. Marrin: Q. Mr. Price, will you explain what that exhibit shows?

(Testimony of Thomas Moore Price.)

The Court: Exhibit what, for the purpose of the record?

Mr. Marrin: Exhibit No. 74.

The Court: Briefly outline what that diagram indicates.

The Witness: A. The two drawings at the bottom of the poster indicate on the left the typical cross-section of the concrete as designed; on the right, it indicates the typical cross-section as modified.

Mr. Marrin: Q. That was modified after the order of the Industrial Accident Commission on September 24, 1935?

A. Yes. The plan, at the top of the poster, shows the two tunnels and the pink portion,—the part that is colored pink, or red,—indicates the portion where the standard section was used,—the section on the—

Q. By "standard section," you mean the section as stated in the original plans and specifications?

A. Yes; and the blue portion indicates the place in the tunnel, or places, where the modified section was used,—the modified concrete section. In each of these two colorings, the hatched portion indicates the places where timber forms were used, where we were unable to use steel forms, and built timber forms in place. The white portion, or where no [1366] color exists, indicates the point where no concrete lining was placed in the tunnel.

Q. By Six Companies of California?

(Testimony of Thomas Moore Price.)

A. By Six Companies of California.

The Court: Q. The white portion?

A. The white portion at the right-hand side of the poster.

Q. Did it need any support at all?

A. We did not do that work, your Honor.

Mr. Wittschen: That was left; but that was done by others.

Mr. Marrin: Q. In other words, the end of the colored section indicates the points to which the Six Companies had completed the main concrete lining at the time they stopped work on June 13, 1936?

A. Yes, sir.

Q. And the white portion here was finished by another contractor? A. That is correct.

Q. To the best of your knowledge, is that poster correct, Mr. Price?

A. Yes, to the best of my knowledge, it is.

Q. Mr. Price, will you describe, or tell us of what the concrete plant consisted which was required for placing concrete in the lining of these tunnels?

A. I will describe the plant according to the flow of the concrete and the materials that went with it. We required a place on the railroad for unloading the sand, gravel and cement to make the concrete. This particular place was a portion of the highway down near what was called the Landvale Cutoff. We hauled the material approximately a mile and a half to a mixing plant, where

(Testimony of Thomas Mo[illegible] Price.)

the separate ingredients for the concrete,—consisting of sand, gravel, cement and water,—were weighed out, and then mixed in a mixer. The next portion of the plant was a requirement to haul the mixed concrete from this mixing plant which was located near the west portal into the tunnel. The next portion of the plant [1367] was a machine required to force that concrete through pipes into the forms,—the forms which held the plastic concrete until it could set up and become firm; that was the last section of the plant.

Q. During the time you were employed by Six Companies, Mr. Price, how many hours per day was the work carried on?

A. It was carried on 24 hours a day for 6 2-3 days a week, throughout the year, with the exception of one or two days,—holidays; and I think it was July 4th.

Q. With full crews?

A. Yes, as near full crews as we could obtain. [1368]

Q. Why was the one-third day a week not worked?

A. Because of the 40-hour limitation placed upon men, we used four shifts to work a week's period, the shifts being only 21 shifts in a week, three shifts per day, would be 21 shifts per week; we were only able to work in that manner, divided among four crews, which made five shifts for each man at 8 hours per day, a 40-hour week.

(Testimony of Thomas Moore Price.)

Q. In other words, the reason you did not work seven days a week was because you could not divide the shifts into the total number of hours?

A. Yes, we took one shift off on Sunday.

Q. Mr. Price, will you state what timber was left in place before the concrete lining was laid by the Six Companies of California?

A. All of the timber was left in place that did not intrude into the neat concrete section, as far as I know or recall.

Q. None of the timber outside of the neat lines of the concrete was taken out before the lining was placed?

A. I don't recall any.

Q. During the time you were employed by Six Companies of California did the company do anything which delayed the work?

A. Not to my knowledge.

Q. The work was shut down two or three days in September, 1935, was it not? A. Yes.

Mr. Marrin: That is all. You may cross examine.

Cross Examination

Mr. Tinning: Q. Mr. Price, you have just been discussing the concrete plant and the loading plant; the loading plant, showing this perspective map, Defendant's Exhibit P, that you described on the Landvale connection was at about where I am pointing

(Testimony of Thomas Moore Price.)

near Lake Chabot and Pacific Gas & Electric Substation, was it not?

A. I would term it the unloading plant rather than a loading plant, yes. [1369]

Q. You had a sidetrack from the Sacramento Northern on which cars came in and then you loaded into that plant, or unloaded into the plant, and loaded into the cars? A. Yes.

Q. And your concrete plant was on the north side of the road, just west of the portal buildings, that is, the mixing plant, was it not? A. Yes.

Q. And your railroad system, the same railroad system that you used for transporting muck out of the tunnel was used for hauling the concrete into the tunnel, was it not?

A. With the exception of that portion or a portion of the railroad outside of the tunnel.

Q. You had a switch running over, but it was a matter of 200 or 300 feet from the portal, was it not? A. Yes.

Q. You said the other day when you came there in September you threw that railroad over to the other side of the canon. Now, looking at this perspective map, is it not a fact that what you did was put a rock bunker, a muck bunker, approximately opposite the concrete plant on the south side of the road, perhaps a little further west than the concrete mixing bunker, but in the same general locality?

A. Yes.

(Testimony of Thomas Moore Price.)

Q. And that you eliminated the railroad from that point of the west portal where your track entered near the muck bunker, down to the part where it had formerly run, it was pulled out of there, and you later used that track as you went into the tunnel? A. Yes.

Q. Mr. Price, when you testified here last week you stated you had been with the Kaiser Company approximately 18 or 20 years. I think you said you started to work for Mr. Kaiser in Seattle in 1919; is that correct? A. Yes.

Q. How long has the Kaiser headquarters been in Oakland, California? A. Since about 1921.

Q. Since that time has your home been in Oakland? A. No, not wholly. [1370]

Q. I do not mean when you were off on jobs in your construction work, but where was your residence since 1921?

A. I resided in several places.

The Court: He wants to know where your home was. A. I had several, I had no one home.

Mr. Tinning: Q. Did you vote in those places where you were?

The Court: You resided at various places?

A. Yes.

Q. Are you a man of family? A. Yes.

Q. Where did your children go to school?

A. Where I was.

Mr. Tinning: Q. How long have you resided in Oakland?

(Testimony of Thomas Moore Price.)

A. I resided in Oakland from about 1924 to approximately 1931, and I resided in Boulder City from approximately 1931 to 1934, and I have since resided in Oakland.

Q. So that you had lived in Oakland about seven years before you went to Boulder dam, and then when you came back to go on this Broadway Tunnel job in 1934 you returned to Oakland to live?

A. Yes.

Q. As I understood your testimony you said that while you were employed by Mr. Kaiser up to 1931 that you had been the superintendent on paving, earth dams and industrial plant construction, largely?

A. I have been superintendent for the company, but I have not been particularly in charge of earth dams; I have been largely on paving, aggregate production and on dams where the aggregate production was connected with the dams.

Q. When you went to Boulder Dam to take charge of the building and operating of the aggregate plant you took along with you a long experience in the handling of that type of work, handling aggregates, designing plants and operations?

A. Yes, approximately ten years. [1371]

Q. As I understood, one part of your work at Boulder Dam was arranging a method of transportation of tunnel muck for Six Companies.

A. Yes.

(Testimony of Thomas Moore Price.)

Q. By the way, Six Companies, Inc., that you worked for at Boulder Dam, that is not the same corporation that was building this tunnel?

A. It was a different corporation.

Q. A different corporation? A. Yes.

Q. Were all of the constituent companies the same in the Six Companies of California, the plaintiff in this case, as the constituent Companies of the Six Companies Inc. which built the Boulder Dam?

A. I do not believe they were actually exactly the same, but I believe practically the same.

Q. What did you mean when you said that when you came to work on September 20, 1934 you took charge of the business end of the project, of the tunnel?

A. Well, I mean just that, the management of the job, the negotiations with the subcontractors, negotiations with the District Engineer, approval of purchases, seeing that the proper records were kept, checking the work that was being done in the tunnel, and seeing that the proper supplies were obtained, and work of that nature; largely executive work, if I may say that.

Q. What is that?

A. Largely executive work.

Q. Executive work? A. Yes.

Q. You had trained technical tunnel men under you in your employ, did you not? A. Yes.

(Testimony of Thomas Moore Price.)

Q. Had you ever been the superintendent or project manager on any job before which had to do with the construction of a tunnel? A. No.

Q. This was your first job?

A. This was my first job.

Q. When you took this work, managing the driving of this tunnel, Mr. Price did you make any investigation of tunnels that had been built in this Bay Area?

A. Well, I do not quite understand your [1372] question. Do you mean prior to my taking the work?

Q. Well, yes, when you started in, either on September 20 or immediately following September 20, when you went on with the work, did you make any investigation or any study as an engineer of the problems that had been met in the various tunnels that had been constructed around San Francisco Bay?

A. Yes, I gathered all the information that I could in my contact with our people.

Q. Did you find any of those tunnels built in self-supporting ground?

A. I don't recall that I did.

Q. Did you find any of those tunnels built where you were able to drive with a full-face operation?

A. Well, the time we investigated as to those, do you mean?

Q. Well, at any time.

(Testimony of Thomas Moore Price.)

A. At any time up to that time, I do not recall that I did, with the exception of a small tunnel that had been driven by a full-face method, as a matter of fact the drift on the east end of the Broadway tunnel was driven by a full-face method.

Q. I am talking of comparable tunnels, there are highway tunnels, or railway tunnels, or some of comparable size, did you find any of those?

A. No, I did not find any of comparable size.

Q. Did you find any tunnels that had been driven here without the use of timber for support?

A. With the exception of one or two, one particularly, I remember, on the Southern Pacific near Oleum; I believe that is the only one, that is not supported with timber.

Q. That is the only one, and that is through sandstone with every little overbreak, is it not?

A. Yes.

Q. It is the tunnel adjacent to the Union Oil Company's plant on the south shore of San Pablo Bay, is it not?

A. Yes. I have passed through it several times and noticed it had no support.

Q. Did you have that in mind when you were conducting the operations [1373] on the Broadway Tunnel? A. I don't recall particularly.

Q. Your inspection was made as you went through on the train? A. Yes.

Q. Last Friday Mr. Marrin read to you some letters, Defendant's Exhibits BB and CC, which

(Testimony of Thomas Moore Price.)

had already been introduced, regarding the extension of time on outside work. He did not read to you another letter which was put in evidence, Defendant's Exhibit FF, a letter of January 23, 1935, in which Mr. Boggs replied to your letter of January 18th, when you discussed the possibility of requiring an extension, in which Mr. Boggs told you that this was outside work upon which time of completion did not seem to have any bearing on the completion of the contract, and it did not appear that the suspension of work which he had ordered in any way could constitute a basis for the granting of an extension of time. You remember that letter, do you not?

A. Yes, I have some recollection of it.

Q. And then on the next day, you wrote a letter to Mr. Boggs, January 24, 1935, which is already in evidence as Defendant's Exhibit GG, in which you stated that you did not mean your previous letter to be an application for extension of time, but wished merely to call his attention to the paragraph of the specifications governing this.

> "We merely wish to put ourselves on record in the matter with the thought that actual decision as to the extension might be made at the time application is made if decided necessary, and provided by the specifications."

The matter dropped at that time, did it not? There was nothing further about that?

(Testimony of Thomas Moore Price.)

A. Yes.

Q. And it was true that the time required for this work was comparatively short and did not control, it was outside work, and it was concrete structures from the west portal down to the west end of the approach, and on the Landvale connection that he was referring to, was it not?

A. Yes, but I didn't know what might happen in the future. [1374]

Q. It was work which required a comparatively short time to complete?

A. No, I would not entirely agree with that.

The Court: Q. In other words, it was not the tunnel proper, in any event?

A. No, it was not the tunnel proper. It took considerable time, though, to complete it.

Mr. Tinning: We will come to that, Mr. Price. As a matter of fact, it was not completed when you left, or when the Six Companies quit on the 13th of June, 1936, was it? A. No.

Q. Although the schedule of Six Companies, filed on August 9, 1934, said that all of the foundations and all of that work would be completed by December 1, 1934. Do you remember that schedule?

A. I believe it did. I think it is a matter of record.

Q. Defendant's Exhibit N. And that schedule showed, did it not, that you intended, the Six Companies intended at the time the schedule was filed to so conduct the work that all of the footings, all

(Testimony of Thomas Moore Price.)

of the structural work on all of the structures on the 2½ miles of highway up to the west portal building would be completed by December 1, 1934—that is what that schedule showed—that was the schedule filed with the District, was it not?

A. I would prefer to examine the schedule again.

Q. It is Defendant's Exhibit N.

Mr. Tinning: Your Honor has seen this at various times before. I might say it is the construction schedule filed with the District or sent to the District on August 9, 1934, Defendant's Exhibit N.

Q. Isn't it true that all of the structural work, the Golden Gate Avenue crossing foundation would be completed by November 1?

A. No, the Golden Gate Avenue crossing foundation was to be completed September 25.

Q. September 25?

A. Yes. You are looking at the Tunnel Boulevard.

Mr. Wittschen: 1934.

Mr. Tinning: September 25, 1934?

A. Yes. [1375]

Q. Landvale foundation by October 10, 1934?

A. Yes.

Q. So that all of the foundation work which was the subject of the correspondence in which Mr. Boggs asked you to cease operations, when you sent this schedule in to the district was planned to be done by the middle of October, or 20th of October,

(Testimony of Thomas Moore Price.)

was it not, the Landvale foundation September 25, Golden Gate Avenue crossing foundation October 10?

A. Yes, apparently it was. This is a proposed schedule at that time, not an actual schedule.

Q. It is a schedule of what you proposed to do?

A. Yes.

Mr. Wittschen: You did not give the year.

Mr. Tinning: 1934, this schedule, the first that we have been discussing, you and I both understood, for the sake of the record, it all referred to 1934?

A. Yes. For the record also I think it should be clear that is for grading only, and that the structural concrete had to be performed after that time.

Q. And the structural concrete showed that that was proposed to be completed, looking down on the structure miscellaneous work, small areas in the structure were to be completed by November 15, miscellaneous east portal wall and culvert by November 10—that work was all supposed to be completed by then, Temescal culvert, west portal retaining wall.

A. By this construction schedule it was—it was proposed it would be completed at that time.

Q. As a matter of fact that schedule, in fairness to you, Mr. Price, was prepared before you came on the job, was it not? A. Yes.

Q. By your predecessor? A. Yes.

(Testimony of Thomas Moore Price.)

Q. The schedule that was submitted with your letter of February 12, 1935 was one which was prepared while you were project manager, was it not?

A. It was prepared with the best information I had at that time as to—

Q. What you proposed to do?

A. When the work would be completed. [1376]

Q. And you show the work for the Golden Gate Avenue crossing foundation to be completed by June 30, 1935, do you not? A. Yes.

Q. And the other work, structural and paving was all to be completed by that date, was it not?

A. Yes.

Q. That was not done?

A. The structural and paving, no

Q. I am not talking about paving. I am talking about the structural work, the pouring of concrete, the walls and those structural areas; I have not discussed paving at all.

A. I misunderstood you. I thought you said structures and paving.

Q. Under the heading "Structures and paving," but I am referring to the item "Culverts, retaining walls, Temescal culvert," all of those were to be done by June 30, 1935, were they not?

A. Yes.

Q. They were not finished, were they?

A. No.

Q. Was the district in any way responsible for the fact that that schedule was not maintained?

(Testimony of Thomas Moore Price.)

Mr. Smith: I object to that question on the ground it is argumentative.

Mr. Wittschen: It is a proper question. He said he was without fault. We are now asking if the district was in any way responsible for that, where they said they would be finished in 1935.

Mr. Smith: That is purely a legal question, and calls for a judgment of the Court and not the witness. He can testify to the facts only.

The Court: Read the question. (Question read.) You may answer. A. I believe that it was.

Mr. Tinning: Q. In what respect?

A. In order to pour the concrete structure it was necessary to start somewhere and the place that I wanted to start in January, where Mr. Boggs stopped me, was the first concrete to be placed in the structure, namely, the footings; and that was the only place where the weather might have any effect on the work. [1377] It was my contention at that time that if he would let me pour those footings between storms that I could pursue the rest of the concrete work that spring, whether it rained or whether it did not rain, and get that concrete structure completed so that the grading could be resumed when dry weather came. Now, if we could never start the footings we could never pour the concrete structure. It turned out that that happened to be a wet spring, and we were not able to get back to these footings until along in May.

(Testimony of Thomas Moore Price.)

Q. There had been six months since the contract had been let, there had been two schedules filed with the district, one before you were project manager and one in February, that you had all of the fall of 1934 and none of the concrete was poured in those footings at that time, was it?

A. None of the concrete had been poured in the footings.

Q. In other words, this was all basic work, and it was in January, when you had open excavations, which were full of rain water, and there was wet ground around and you could not get a good foundation to put these foundations in that Mr. Boggs said you were not going ahead with the work because you were delayed in getting started, isn't that true, that if you had started before the rains set in you would have had no trouble?

A. I am sorry, the question is so involved I could not answer it.

Mr. Tinning: I am sorry. I will divide the question.

Q. Why didn't you do the work between June and December, 1934?

A. We were doing other work which seemed to be equally important, and we thought we could continue the work.

Q. Isn't it a fact that all of this work was subcontracted? A. Yes.

Q. And there was no reason why these subcontractors, with proper forces of men, proceeding at

(Testimony of Thomas Moore Price.)

the proper speed in the summer and fall of 1934, could not get that concrete in in that summer and fall, was there? You just did not do it?

A. I would like to correct [1378] my former answer. I say it was all subcontracted. I believe it was at that time. I think later on we took over some of the work.

Q. But in 1934 you had subcontractors selected by Six Companies employed to do this work, did you not? A. Yes, at that time we did.

Q. And you gave the District a schedule showing that the work would be done at that time?

A. Yes.

Q. Why didn't you do it?

A. Apparently they were not able to get that much work done in that period.

Q. Is that your conclusion, or do you know?

A. It is my conclusion. I saw the work almost constantly and pressed them every day for the work; they seemed to be going as fast as they could reasonably. The work that we were pressing was particularly the work at the portals of the tunnel, and the retaining walls where wet weather conditions would be very disadvantageous, and I believed personally that the bridge work could be done during the winter season.

Q. But the District Engineer did not agree with you on that? A. He would not let me start.

(Testimony of Thomas Moore Price.)

Q. And you wanted to start at the end of December or the 1st of January, and six months had elapsed at that time?

A. We were continuing at the time.

Q. It is true, is it not, that six months had elapsed when you wanted to start putting in the foundations of these buildings?

A. No, I cannot agree with you, because we had already started with it, we had never stopped.

Q. Did you have any concrete in? A. Yes.

Q. Where?

A. We had concrete in the west portal retaining wall.

Q. We are talking now about these structures. What did you have in from the west portal walls at the approach to the cut at Broadway, about two and a half miles of highway?

A. We had, I believe, all of the culverts in; we had to put the culverts in before any concrete [1379] work could be performed. We had gotten, I think, most of the walls in. We had performed some of the work on the east end where there was a large culvert which had to be done because of stream diversion there, and we were just preparing, we were continuing the work at the time; we were not starting the work. The work had been continued all that time and was being continued in January.

Q. The letter DD of Mr. Boggs told you not to start footing excavation, did it not? A. Yes.

(Testimony of Thomas Moore Price.)

Q. So that there were excavations which you were proposing to start in in the middle of the rainy season, at the time you wrote that letter?

A. No, I won't agree with you about starting; we were continuing.

Q. Mr. Price, we are not trying to fence with each other. We can go on faster; you understand I am talking about particular structures that are referred to in this letter. A. Yes.

Q. Do you remember the letter?

A. Yes. Might I explain what I mean, and maybe that would clear it up. We had excavated the structures and the footing for the Golden Gate Bridge, as I would call it, two or three times, and had a shower on it, and that work had been done in December, and each time that it rained the engineer required us to go back and clean up the work, and possibly excavate a little more footing so as to get a good cut for the footing.

Q. Was that unreasonable?

A. No, I don't think so.

Q. In other words, it was the only way that the work could be done properly, was it not?

A. Yes.

Q. And when it became wet from rainfall you had to clean it before you put the concrete in in order to get a proper foundation?

A. Yes. I had not quite finished with my other statement. It was my plan to get that first concrete poured between storms, if we could only get

(Testimony of Thomas Moore Price.)

a foot of it poured, and then proceed with the work.

Q. Have you finished? A. Yes. [1380]

Q. Why didn't you do that work between June and December, as the schedule showed you planned it?

A. The subcontractors could not get around to it.

Q. You selected the subcontractors, the Six Companies did?

A. The Six Companies of California did.

Q. Why didn't you do it in the succeeding year between May and December?

Mr. Smith: You mean 1935?

Mr. Tinning: 1935, that is the succeeding year.

A. We did do it.

Q. Did you finish it?

A. We finished the portion that we are talking about, the footings; I believe we practically finished the Golden Gate Bridge and most of the Landvale viaduct.

Q. Do you say most of the Landvale was done when you left in 1936 in June?

A. Yes. I think the greater portion of it was completed. That would be a matter of record. I have not got the exact percentage.

Q. As a mater of fact, there was a good deal of it; you had the main structure in but all the upper works had to be finished by the other contractor after you left?

A. If you are referring to the walls, the railing

(Testimony of Thomas Moore Price.)

on each side of the bridge, I think that had to be done.

Q. Quite a good deal of work remained to be done?

A. A question of percentage, I don't know the exact percentage.

Q. On the east portal you had to have that culvert in there so that the highway could pass over. That was the reason for that, was it not?

A. And also to take care of the drainage from that creek, from the portal, which was down in the bottom of the canon.

Q. That was done in the fall of 1934, was it not?

A. Yes.

Q. Isn't it a fact that this plan for carrying on the work that was given the District on August 9, 1934, called for the progress of all of these structures consecutively, concurrently—the contractor [1381] was not going to work on one structure and then then when he finished that go to another—the exact lines shown on that diagram showed proposed progress of those various outside structures were to run along consecutively, I mean concurrently, so that two or three jobs were going on at the same time. That was the way it was proposed, was it not? Would you like to look at the diagram? This is the August 9th plan which shows that this work was to be carried on concurrently.

A. This is the proposed construction schedule

(Testimony of Thomas Moore Price.)

again, and it shows exactly what work was proposed to be done at a certain time.

Q. The Sacramento Northern Railway work was to be done between July 5 and September 15?

A. September 10.

Q. September 10? A. Yes.

Q. The Landvale connection culverts were to be done at the same time?

A. To be done August 31.

Q. They were to be done concurrently, then?

A. Those two were to be performed concurrently.

Q. The west portal wall and the Temesal culvert were both being done, were planned to be done at the same time? A. Those two.

Q. The Golden Gate overhead miscellaneous west end structures were all planned to be done at the same time?

A. They were not planned to be done, they were running concurrently.

Q. The east portal walls and culverts were supposed to be running during the same period—that took a longer period than this other work on the west end tc be done?

A. Not all of the other work; only the Landvale, the Golden Gate.

Q. What about the Temescal culvert?

A. Yes, it took a portion of that time.

Q. Did the same subcontractor have the work at the east end that was doing the work on the west portal? A. Yes. [1382]

(Testimony of Thomas Moore Price.)

Q. Or the west approach? A. Yes.

Q. Was any of the work done concurrently?

A. I am sorry, I did not follow you.

Q. Was any work done by the subcontractors—the subcontractor was a man named Ball, was it not? A. Yes.

Q. And Mr. Ball subcontracted to a man named Bohnett? A. Yes. [1383]

Q. Did Bohnet build the culvert on the east side?

A. I believe he did; that work was done before I arrived.

Q. That was completed before you got there; so that did not delay the work, did it?

A. No; I don't think it did.

Q. That followed on schedule?

A. I am not positive exactly, on the date it was started and was completed.

Q. But it wasn't anything to trouble you, and would delay you by reason of it? A. No.

Q. So that, while our problems from now on will be a discussion of the west portal, it is a fact, on the west approach, where Mr. Bohnet was a subcontractor under Mr. Ball, who was a subcontractor under Six Companies, the work was not done in accordance with the schedule? Isn't it true that, by supplying adequate equipment and a proper number of men, there was no reason whatsoever that that work could not be done?

A. I would not agree with the last part of your

(Testimony of Thomas Moore Price.)

statement. I would say it would be very uneconomical to put a crew on every structure.

Q. It would be a question of economics, then, not progress?

A. I presume the Contractor had that in mind in doing his work.

Q. Mr. Bohnet had a subcontractor working for him, didn't he, named Harry Talbot, who hauled the material?

A. Yes. I wouldn't call him a "subcontractor," unless you would call anyone that you purchase anything from "a subcontractor."

Q. Do you call hauling something you purchase——

The Court: A supply man?

The Witness: A. Yes, a supply man.

Mr. Tinning: Q. Then, it is true, isn't it, that Mr. Bohnet had a subcontractor who supplied reinforcing steel for him,—the Pacific Coast Steel Company?

A. Yes. Pacific Coast Steel Company placed all the steel on the job, both inside and outside. [1384]

Q. Starting at the top, with the District, then comes Six Companies, then comes Mr. Ball, then comes Mr. Bohnet, then comes Mr. Talbot, then Pacific Coast Steel Company; then, off to one side, there, you had "Excavating and Grading, McKinley"?

A. Yes; but he was not under Mr. Talbot or Mr. Ball.

(Testimony of Thomas Moore Price.)

Q. No. We are switching over to another branch of the family tree now. We are now talking about Mr. McKinley. Mr. McKinley was the man who was to do the structural excavation, wasn't he?

A. I believe that is correct.

Q. And the structural excavation that was called for, on those schedules of August 9th, was not completed, with respect, at least, to the Golden Gate Structure,—overhead structure,—by December 1, 1934? A. No, sir; I don't think it was.

Q. The other day you testified, as I understand it, that the paving in some way had control of the time that Six Companies could finish this work. Is it not a fact the only thing on the whole project which was controlled in any respect by tunnel operation was the half mile, approximately, of highway from the west portal down to somewhere near Station, I think you called it, 78 on your schedule, a distance of some 3000 feet from the west portal where, under the specifications, there was a provision for putting the tunnel muck into the embankments on the highway? A. Yes.

Q. So that all the rest of this highway, from Broadway up to the point where you had to put tunnel muck, could have been paved at any time that the grade was completed?

A. Yes, it could have, subject to weather conditions.

Q. Before that, all the summer of 1935, Mr. Price, how was the weather during that summer?

(Testimony of Thomas Moore Price.)

A. As I recall it, it was a good summer.

Q. You did not do any paving then, did you?

A. Yes. We paved the Old Tunnel Road, I believe. We had a portion of the road leading up [1385] to the Old Tunnel,—which is not shown on there in color.

Q. The Old Tunnel Road was set back, by reason of the excavation for the project, somewhere——

A. Well, it shows the two there.

Q. Yes?

A. This road here, up the hill, just above the yellow portion on Exhibit "P."

Q. Just above the Old Tunnel Road shown on Defendant's "P",—that is the light colored line that runs along, meanders up the hill—a winding, narrow, old road? Now, just above the Pacific Gas and Electric Substation on, I will call it, the north side of the road, for about—what was it,—1000 feet; something in there?

A. It was nearer 1500 feet.

Q. Well, there was about 1500 feet of tunnel road there was moved back because of the grading below; it had to be set back further into the hill—is that correct? A. Yes.

Q. That was a travelled road at that time?

A. Yes.

Q. And part of your duty, under the contract to maintain detours and travel over existing roads, was it not?

(Testimony of Thomas Moore Price.)

A. Well, to a limited extent. I don't think it was our duty to maintain the detours all the way over the hill and through the tunnel to the east end. I think it was only a portion where our work was going on.

Q. Only within your work; and this 1500 feet was a part of your work; and, while you were doing your work, the travel had to be maintained over that road, did it not?

A. Yes; some of the time, that Old Tunnel was blocked by a slide, and all the travel was diverted to the Fish Ranch Road.

Q. That was something you had nothing to do with; that slide that filled up the Old Tunnel was some time in the fall of 1935, and for several months during 1935 it was closed? A. Yes.

Q. During that period, this 1500 feet of Old Tunnel Road was paved, was it not, during 1935,—the summer? A. Yes.

Q. So, when the Old Tunnel Road was reopened, after the cave that [1386] occurred in that tunnel, your work was done on that 1500 feet? A. Yes.

Q. It is also true that, in that same year, from the west end of the project down to where it intersects with Broadway, you completed paving about—How many lineal feet would there be there?

A. Well, I am unable to say, or to express it, in lineal feet, because there was a large intersection of the road leading up to the tunnel. I imagine,

(Testimony of Thomas Moore Price.)

around 1000 feet was paved; but the intersection had to be regraded and paved. That was the principal work.

Q. And the intersection was one which the travelling public,—the people using Broadway going out to Berkeley and to Claremont and south on the Fish Ranch Road,—used; it was a heavily-used piece of road; and you paved about 1000 feet, at the west end of the project, to connect with the intersection, so people could use that? A. Yes.

Q. Other than that, there was no paving done on the job in 1935?

A. No; there was not; there was some temporary paving on the west end——

Q. Temporary paving——

A. At the east end.

Q. Detour paving? A. Yes.

Q. Which you were required to do, under your contract? A. Yes.

Q. All the travel that came over that road,—the Tunnel Road,—from Walnut Creek into Oakland, had to pass over the construction which was going on in the bottom of the canyon there; and you had the Fish Ranch Road on one side and the Old Tunnel Road on the other, and your work was between the forks of the "Y" there, was it not? A. Yes.

Q. A very tight place to work? A. Quite.

Q. Your August 9, 1934, schedule shows that you completed—that you planned to do all the paving,

(Testimony of Thomas Moore Price.)

from the west end of the job to Station 75, in 47 days? Do you recollect that? [1387]

A. No; I don't recollect that, but, if the schedule states it, that is all I know.

Q. That work was not done in any 47 days or any other days in 1935, was it?

A. I do not think so.

Q. The fact that you were falling behind in the driving of the tunnels had nothing whatsoever to do with the delay of the paving from Station 75 west to Broadway, did it?

A. Yes; it had its effect. The job was not acceptable, in part; it had to be accepted as a whole, which included the tunnels as well as all the outside work; and, due to the fact that the pavement could not be completed entirely from the tunnel work until enough muck had been received from the tunnel to make those fills, it was impractical to do the paving at one time, because the cuts in the winter of 1934 and '35 on the west approach, and also some of the fills on the west approach hill, had slid in the highway to a very large extent; and it seemed practical to me to put the paving off, if possible, on those fills and in those cuts, because it would be destroyed in the winter of 1935 and '36, and then we would have to replace it at the expense of the Contractor; it would be better to pave it as near as possible at the end of the job, in order to save this destruction by the slides; and the Engineer would not let us move

(Testimony of Thomas Moore Price.)

any dirt except the dirt which came down into the roadway section; we could not slope the sides to make them safe.

Q. You got paid for whatever slide material you moved?

A. Whatever came into the roadway section.

Q. Mr. Price, isn't it a fact that what you had in mind about not doing that paving was you did not want to haul over it with your construction operations and so on; you wanted to wait until you were done, so you did not have to maintain the paving during this period of time?

A. That had some effect on it. That was not the entire cause. [1388]

Q. That had quite an important effect?

A. No; I don't think it was quite important. We planned on hauling the material for the concrete up the Old Tunnel Road and then over the new road.

Q. There was really no particular reason for failing to put in the paving, except you thought it would be wiser to wait until the end of the job to do it?

A. Yes; I thought it would be wiser; and I thought we would do the paving all at one time.

Q. If you put the paving in and slides would come down on it and you would haul the slides away and the pavement would have still been there, —just the way they do along the state highways all over the state?

(Testimony of Thomas Moore Price.)

A. Well, I noticed, in the last slide recently out there, the pavement was quite well chewed up when they took the slide out. It would depend on the man who was taking it out, to a large extent.

Q. If it were done carefully and not with WPA labor, you could take it out without chewing up the paving? Now, the pavement specified is an oil macadam, Mr. Price—that is true, isn't it?

A. Yes.

Q. You said that temperature controls pavement laying?

A. It is my impression that section of the specifications has a reference to temperature.

Q. Isn't it a fact, Mr. Price, that the specifications provide for two types of oil macadam pavement: one is a hot oil pavement, of which there is a temperature control; and the other is a cold oil emulsion, which could be laid in winter or stormy weather? I refer you to Section 17, Page 32.

A. Yes, I think that is correct—I don't know if the page is correct.

Q. My question correctly states the fact with respect to the specifications; one method was the hot oil method, which is proper to use in warm weather; and there is also an oil emulsion method, which could be used in cold weather—is that not true?

[1389]

A. That is apparently what the specifications state.

(Testimony of Thomas Moore Price.)

Q. So, there was a flexibility provided by the specifications that would permit you to put down oil pavement in accordance with the specifications at any time that you could get a subgrade that was hard enough to put it on; isn't that true?

A. Yes. It is my impression, however—my recollection, I should say, that, from talking that over with the District Inspectors, the oil emulsion pavement was not contemplated for the entire job but only the necessary work in the winter season when the other work could not be performed, and that, in any event, it would be necessary to have a hard subgrade before any kind of pavement could be laid on it.

Q. That was the reason it was in the specifications; so, if it was necessary to finish up the work, —the road work outside, in the winter, —it could be done at any time between storms?

Mr. Marrin: I object to that part of the question that says: "That is the reason it is in the specifications." He cannot possibly answer that.

Mr. Tinning: Well, he is an engineer.

Mr. Marrin: Well, he did not draw the specifications.

Mr. Tinning: I will withdraw the question.

Q. Is it not a fact that, under the specifications, the Contractor had the option of putting in either hot oil emulsion in the summer time or, if he could not comply with the temperature requirements, he would put in a cold oil emulsion?

(Testimony of Thomas Moore Price.)

A. I did not so understand that.

Q. You did not so understand it?

A. No; I did not understand—I thought it was a question of extent, to the best of my recollection.

The Court: Q. Briefly, what is the cost differential between the two forms?

A. I am unable to give you any difference, your Honor. I don't know whether there is any particular difference or not. [1390]

Q. Both equally satisfactory, are they?

A. Well, personally, I don't like either one of them.

Q. Well, I did not ask you that.

A. I guess they are equally unsatisfactory.

Q. I had in mind, from the viewpoint of the Contractor; one is as good as the other?

A. I wouldn't say the cold emulsion is as good as the hot—

Q. I did not think so, myself. That was the only reason I asked you.

Mr. Tinning: Q. Six Companies bid just the same price for either method, didn't it?

A. I think so.

Q. If you will look at Subsection 1 of Section 17 on Page 32, "Penetration Oil Macadam Pavement," then:

"Description.—A Penetration Oil Macadam Pavement shall be constructed at locations and of widths shown on the plans, and as directed consist of two (2) courses, namely, a water-

(Testimony of Thomas Moore Price.)

bound base course consisting of rock and screenings, compacted by rolling and watering and of a depth not less than six inches (6″) after final compacting, and a penetration oil macadam top course two inches (2″) in thickness after compacting, consisting of rock and screenings compacted by rolling and bound and sealed by applications of hot road oil or cold emulsified road oil, as hereinafter specified."

A. I might correct you there. You said "waterlogged." I presume you meant "waterbound"?

Q. Thank you. The point of this is, Mr. Price, that you could use either hot or cold oil method, could you not? A. I believe so.

Q. How much material did Six Companies take out of the west portal building excavation?

A. I am unable to give you the exact figures. I have a recollection as to approximately around 40,000 [1391] yards; but I would not be sure.

Q. Well, it is a fact, is it not, the neat excavation required for buildings was approximately 20,000 yards?

A. I am unable to say exactly. I think it is something around that figure, to the best of my recollection.

Q. You think you took out about twice as much?

(Testimony of Thomas Moore Price.)

A. That is my memory.

Q. How much material did you take out of the west portal approach cut, in cubic yards?

A. I am sorry; I thought you were talking about both the buildings and the approach cut.

Q. Well, I wasn't. Where did you put the material that came out of the west approach cut and the west portal building cut?

A. I am not sure where it went; I was not there at that time.

Q. As a matter of fact, it went into the half mile of road between the west portal, where your tunnel muck went also, did it not?

A. I could not say. I presume that it did. I think some of it was used to build a site for the blacksmith shop and the lumber yard, but I would not be sure; I do not know.

Q. Can you look it up and find out?

A. I don't know whether I could; I don't know whether I would find the record of it.

Q. Isn't there anyone in the engineering organization of Six Companies who knows where you put it,—the 40,000 yards of material that came out of that cut?

A. I probably could find out. I will try, if you wish me to.

Q. Isn't it a fact, Mr. Price, that there was 20,000 yards of neat excavation; it shows from the plan, in the west portal building?

(Testimony of Thomas Moore Price.)

A. I don't recall, Mr. Tinning. I don't have those figures very clear in my mind.

Q. Isn't it a fact that there was 31,000 cubic yards of excavation in the west portal cut, west of the portal building itself?

A. As I say, I would have to refresh my mind, from the records on [1392] it; I am not clear on it.

Q. Well, we will take that up later on. I would like to have you look it up at the recess, if you will, please.

You testified with respect to a conversation between Mr. Bechtel, Mr. Boggs and yourself, some time in May, in which ground conditions, you say, were discussed, and a question of an extension of time. Did you make any memorandum as to the date of that conversation?

A. No, sir; I did not.

Q. Or of the conversation itself?

A. No, sir; I did not.

Q. Is it not a fact that this conversation that you refer to occurred on the 21st day of May, 1935, shortly before the noon hour, on the front steps of Six Companies' office building near the west portal of the tunnel?

A. I could agree with you upon your statement that it occurred on the front steps of the office building. To the best my memory, it was about the middle of May; and it was, as I recall, about ten o'clock in the morning.

Q. Upon that occasion, Mr. Price, you recollect that Professor Charles Derleth, Jr., one of the District's consultants, was present.

(Testimony of Thomas Moore Price.)

A. He definitely was not there.

Q. He definitely was not there?

A. Not at our conference.

Q. You so testify?

A. Yes, sir. I will definitely tell you that.

Q. Was he present at any conference in May of 1935, at the west portal building, when you and Mr. Bechtel and Mr. Boggs and Professor Derleth were all present?

A. I don't recall. When I saw Professor Derleth out there occasionally and discussed—you know, like you pass the time of day with somebody you like—I asked about things in general,—nothing in particular; I had no particular conference, nor do I recall any definite conference with Professor Derleth at any time out there.

Q. Mr. Price, we are getting away from the subject. We are talking [1393] about a conference in which Mr. Bechtel and yourself and Mr. Boggs and Professor Derleth discussed certain phases of the work.

Mr. Smith: He said no such conference occurred. How can you be talking about it?

Mr. Tinning: Mr. Smith, I tried to make very clear then whether there is a misunderstanding about it. The witness has said he remembered some discussions with Professor Derleth about nothing.

Q. When you met Professor Derleth out there, did you simply pass the time of day with him, Mr. Price? A. Largely.

(Testimony of Thomas Moore Price.)

Q. Did not discuss the problems of your work at all? A. No; not that I recall.

Q. Never recalled discussing them?

A. I do not recall, except a fragment of one discussion with Professor Derleth, and I am unable to place the time it was; that was a discussion, to the best of my recollection, in the latter part of 1935.

The Court: Q. Was anyone present at that conversation?

A. I am unable to recall, your Honor—Mr. Boggs and myself were present, Professor Derleth.

Mr. Tinning: Q. Where were you when that occurred?

A. We were right in front of the District office, up there by the west portal.

Q. That was a couple of hundred feet west, let us say, of where this conversation you had in May was; but the office was nearer the portal than the District office?

A. Yes; and Professor Derleth was talking about the controversy that had arisen between the Six Companies of California and the District, and he advised Mr. Boggs that it had always been his policy to compromise with the contractor. That was the extent of it. I don't remember anything else about the conversation.

Q. You remember that, because it sounded good to you?

A. Yes, I do. It had an effect on me.

(Testimony of Thomas Moore Price.)

A. Yes, I do. It had an effect on me. [1394]

Q. Mr. Price, coming back to this May conversation, do I understand it is your positive testimony that Professor Derleth was not present at the conference to which you testified the other day, in which you said that Mr. Boggs told you you were entitled to an extension of time?

A. Yes; he was not present.

Q. He was not present?

A. That is, at the conference. I am unable to say he was not on any portion of the work; I do not know; I do not recall. He was not at the conference.

Q. At the time? A. At the time.

Q. Isn't it a fact that, at that time and place, Mr. Price, that Professor Derleth advised you and Mr. Bechtel that he considered it highly dangerous to leave such a large, long section of the tunnel supported by timbers, supported in that manner over the length of time that had elapsed, and he thought you ought to get your concrete started immediately?

A. No; I don't recall Professor Derleth ever telling me that at any time until after the cave-in of August 28, 1935.

Q. He did tell you that afterwards; you remember that?

A. Well, a lot of people told me; and he was there, and I presume he told me, also.

Q. Isn't it a fact, at the time and place of this conference that you have referred to, that Mr. Boggs

(Testimony of Thomas Moore Price.)

stated it was not imperative Six Companies required an extension of time, and that, before any extension of time could be granted, it would have to be approved by the PWA and the Board of Directors, and that, in order to get such approval, Six Companies would have to have a good and substantial reason for an extension of time, and that he, Mr. Boggs, knew of no reason for the extension and would not recommend it? A. No.

Q. Isn't it true that following, in the conversation, Mr. Boggs suggested that you defer your request for an extension of time until [1395] a short time before the completion, until it was then evident that Six Companies could not finish within the contract time? A. Yes.

Q. Isn't it true that, at that time, Mr. Bechtel stated, in your presence, to Mr. Boggs that he felt it was necessary to put in a request at that time as a matter of record, and that he was going to do so?

A. I don't recall the statement regarding the matter of record; I know he stated he felt it was necessary to put in a request at that time.

Q. Isn't it a fact that, at that time, nothing was said whatsoever about ground conditions being different than you had anticipated?

A. I would like to have the question over again.

The Court: Read the question, Mr. Reporter.

(Pending question read by the reporter.)

The Witness: A. No; that is not a fact.

Mr. Tinning: Q. You stated that you met Mr. Boggs in December, 1935, and had some conversa-

(Testimony of Thomas Moore Price.)

tion with him in connection with time extension. Have you any notes or memoranda of the date?

A. No, sir. I did not keep records of conversations in my diary. There were so many of them I would not have had time to do much else. I did not keep a record of that particular conversation; but I remember it very well, as to what happened. I cannot place the exact location; but my best recollection is it was near the east portal of the tunnel.

Q. You fix the time roughly as December, 1935?

A. Yes.

Q. As I understand it, you had been advised to discuss the matter with Mr. Boggs on a noncontroversial basis? A. Yes.

Q. You asked him if he considered that the paving to be done in the spring of 1936 would be a legitimate cause for granting the Contractor a time extension?

A. Yes; I asked him that in connection with the slides in the cuts and sinking of the roadway as it already had been completed,—the three are practically tied together: the roadway, grading and paving; and Mr. Boggs told me he [1396] thought it was an adequate reason for time extension, and would be noncontroversial.

Q. For many years, you have been a highway contractor, have you not?

A. Well, I have worked for one.

Q. You know that grades through hills always

(Testimony of Thomas Moore Price.)

have slides in the wintertime, especially on new construction?

A. It is normal, I think, in most ground.

Q. And the contractor anticipated that when he made the bid on this job, didn't he?

A. I am unable to say.

Q. Well, that depends on how you bid on a job of this kind? [1397]

A. It would entirely depend on the conditions surroundings the job, the slope which the engineer specified in his plans, the slope of the banks, the nature of the ground, itself, as to whether the engineer would try to correct the slide then or just wait until it came to him, all of those factors; it is difficult to give an answer to it.

Q. Isn't it true, with all of your knowledge of what might happen, as an engineer, handling this work of construction, where you had estimated this job and put in a bid, where you knew you were going to have a number of months to do this work, at least one winter season, and possibly two, required to do the work, that you could anticipate there would be slides?

A. I think it would be a reasonable anticipation.

Q. And there was also the settlement of fills?

A. I do not think that would be so—

Q. Not so material a fact?

A. Not so material a fact as figuring slides.

Q. Something that might occur?

(Testimony of Thomas Moore Price.)

A. If a fill is properly designed it will not slide in unless the foundations are placed in wrong.

Q. Mr. Price, isn't it a fact that you knew when you went on this job that there would be slides and that the contract called for the removal of the slides by the contractor, and he got paid for it?

A. No, I do not recall that was the condition at the time I went on in September, 1934.

Q. You know you got paid for removing the slide material?

A. Yes, we got paid for the material that came into the roadway cut.

Q. You knew when you had this talk with Mr. Boggs in 1935 that the contractor had written this letter of July 26th, this letter of August 23rd and August 28th, 1935—you knew about those letters, didn't you? A. Yes. [1398]

Q. In which the contractor was claiming the right to an extension of time? A. Yes.

Q. And you knew that the District claimed that the contractor's delay in going on with the work was entirely due to the method that the contractor had used in driving the job?

A. Yes, it is my impression that is what the District claimed.

Q. You knew that that was the controversy, did you not? A. I think so.

Q. You did not apply in writing for an extension of time in December, 1935, did you?

A. No, not that I recall.

(Testimony of Thomas Moore Price.)

Q. And there was no written application for an extension of time made again following the one that was made in June, 1935—the Six Companies never made another application for extension of time until the 10th of May, or 8th of May, 1936?

A. I believe not. However, it is my understanding that an attempt was made to write such a letter, and that there was a conference between Mr. Boggs and Mr. Hindmarsh, and Mr. Boggs again stated it would be unwise, in his opinion, to apply for an extension of time at that time, and would prefer to have us do it at the end of the job, and Mr. Hindmarsh agreed to his opinion. That is hearsay with me.

Mr. Tinning: Your Honor, then, I move that that go out.

The Court: It may go out.

Mr. Tinning: Q. Mr. Price, do you remember a visit to Mr. Boggs' office on December 24, 1934, with Mr. J. Q. Barlow?

A. I remember going to Mr. Boggs' office with Mr. Barlow at one time, but; I am unable to approximate the date exactly.

Q. Did you make any notes of that visit?

A. No, I did not. I wrote a memorandum about it. I could refresh my memory about that.

Q. Do you mean a memorandum?

A. Inter-office memorandum.

Q. Does that state the conversation that you had there at that time? [1399]

(Testimony of Thomas Moore Price.)

A. I don't recall whether it states the conversation or not.

Q. Have you that with you?

A. No, not with me. I am under the impression that we have a memorandum, but I am not positive.

Q. Will you bring that memorandum when you come to court this afternoon?

A. If I can find it.

Q. In discussing engineering service on this work with Mr. Marrin, as I remember your testimony, you told him that the District Engineer did no work inside of the tunnel and all of the work outside of the tunnel.

A. I said the District Engineer did no work in the tunnel that was of any benefit to us, as far as I knew.

Q. And that they did work outside the tunnel that was of great benefit to you?

A. They set the lines and grades on the outside work.

Q. They set in the tunnel, did they not, a concrete monument at varying distances behind the excavated face which was 24 inches square and about 30 inches deep, which set about the center of the tunnel; isn't that correct?

A. I say they set some monuments back behind, Mr. Tinning, but I would not be positive as to the size or what the monuments consisted of. I presume they were intended to be a permanent monument in the tunnel.

(Testimony of Thomas Moore Price.)

(A recess was here taken for the Grand Jury.)

(After recess:)

Mr. Tinning: Q. Mr. Price, it is a fact, is it not, that following your conversation with Mr. Boggs on December 24, 1934, Christmas Day, and the next day December 26, 1934, you wrote the first letter requesting additional engineering, that letter of December 26, 1934, which is in evidence as one of the exhibits in this case?

A. Yes, I recall I wrote him immediately after that conference, at his request, but I do not recall just now at the moment whether that was the first letter, or not. [1400]

Q. Do I understand you to state now that Mr. Boggs requested you to write the letter on the engineering?

A. Yes, the letter describing the conference with Mr. Barlow.

Q. Is it not a fact that at that conference that Mr. Boggs told you that he would continue to give you the same kind of engineering that you had had up to that time, the center line, the grade in the center of each tunnel, and Mr. Barlow said, "If it was my job I would quit"?

A. Yes, that sounds like him, but I don't recall his saying that.

Q. Isn't it a fact that you got up and went out after that, and then you wrote the letter the next day, or the next business day?

(Testimony of Thomas Moore Price.)

A. My recollection is that Mr. Boggs asked me to—I may be confused on the letters. I would like to see the letters so that I could refresh my memory. But it is my recollection Mr. Boggs asked me to describe what I wanted him to do on the lines and grades.

Q. I will show you my working copy of the letter of December 26th to refresh your recollection. I am referring now to Defendant's Exhibit BB, now in evidence. It is a fact that this letter was written on the next business day following your conference with Mr. Boggs, is it not? A. Yes.

Q. You now testify that he requested you to send him the letter? A. Yes.

Q. And then when you left the office when Mr. Barlow advised you to quit, you wrote this letter of December 26, 1934, and Mr. Boggs replied to that letter on the 3rd of January and told you that he was not going to do any additional engineering, he was going to continue to give you the engineering just as he had before. Do you remember that? It is Defendant's Exhibit CC.

A. Mr. Tinning, I have a recollection of such a letter being received, I don't recall the date. [1401]

Q. And he said,

"With respect to your outline of engineering work which you desire the District to perform in connection with the establishment of lines and grades, I wish to advise you that the District Engineer will continue to establish lines

(Testimony of Thomas Moore Price.)

and grades on a single base line in each tunnel, and that any additional points which your working crews require should be furnished by your own engineering organization, as required by the specifications".

Now, in the face of Defendant's Exhibit CC, which you received on January 3, 1935, is it still your opinion that on December 24, when you and Mr. Barlow were in Mr. Boggs' office, he asked you to write him a letter?

A. Yes. He asked me to write a letter, asking me to describe what we wanted in lines and grades in the tunnel, and that is a letter giving him the grades and lines which we did wish to be established.

Q. As a matter of fact, the contractor had an engineering crew working on this work before December 24, 1934, did it not?

A. We had had one since I was there, and I understand prior to that date.

Q. And after you got these letters you continued to keep that engineering crew at work, did you?

A. Yes.

Q. You did not quit?

A. We did not quit. I could not agree with the letter you mentioned of January 3, in which Mr. Boggs said he would continue to set lines and grades, because they had already been set.

Q. You were still driving the tunnel, weren't you?

(Testimony of Thomas Moore Price.)

A. Yes, but after you set something once you cannot set it again, it is already set.

Q. Didn't he follow up along in the tunnel?

A. I don't know, we could never use his work.

Q. You did not make any observation to determine what kind of monu- [1402] ments he had in the tunnel?

A. His work did not affect us, at all; he only worked where we had completed the tunnel.

Q. Will you answer my question? Did you observe any monuments in the tunnel?

A. I observed some quite a ways back of where we were working.

Q. Those were concrete monuments placed in the center of the tunnel, at the center line of the tunnel, approximately 24 inches by 24 inches, and about 30 inches deep, sunk down into the subgrade of the tunnel?

A. I didn't notice the size, but they were placed in the completed section of the tunnel as far as excavated.

Q. Didn't you ever look at any?

A. I don't recall measuring them or looking at them, but I am of the impression they were about 6 by 6 inches.

Q. That is your recollection?

A. Yes, they were all behind. They were not up near the excavation.

Q. Now, I am not talking about how far behind they were, I am talking about how big they were,

(Testimony of Thomas Moore Price.)

Mr. Price. You were able to observe they were 6 by 6, you say?

A. Yes, as a matter of fact I think they were buried; there was quite a distance buried in the ground.

Q. Who buried them?

A. The District engineer.

Q. Did he cover them up after he buried them? Do you mean he covered them over with dirt?

A. They would naturally be covered with water down low; I think most of the time they were covered with water.

Q. As a matter of fact, your own engineers based their operations ahead on those monuments, did they not? A. I do not think so.

Q. You do not think they did? A. No.

Q. Do you know?

A. No, I could not say definitely.

Q. Who was the engineer in charge of your engineering party in 1934, 1935?

A. Well, pardon me, you said two years, didn't you?

Q. We spend a lot of time getting my questions corrected for you. My question is, in December, 1934. A. I think Mr. Shaw. [1403]

Q. And Mr. Shaw continued through January, February, March, April and May, June and July as the head of the engineering department?

Mr. Smith: Of what year?

A. He continued up until 1935, I forget the month.

(Testimony of Thomas Moore Price.)

Mr. Tinning: Q. When did he leave?

A. I don't remember.

Q. How long was he with you?

A. I would estimate approximately a year, to the best of my memory.

Q. Who did the engineering after Mr. Shaw left?

A. Mr. Hall.

Q. Do you know whether Mr. Hall used the monuments set by the District in the tunnels to start his work, as he went ahead to do the work as provided in the contract?

A. No, he would not need to use those.

Q. He did not need to? A. No.

Q. You know that is a fact?

A. Yes, I believe that to be a fact.

Q. Do you know it is a fact?

A. No, I don't know it.

Q. You don't know how much about it, do you?

A. Yes, I think I know some about it.

Q. Did you ever see one of those engineers that worked for you start a base line in that tunnel?

A. Yes.

Q. Where? A. At the portal.

Q. At the portal? A. Yes.

Q. And on what date?

A. Soon after I came on the job, in the latter part of September.

Q. Just as you were going underground?

A. Yes.

(Testimony of Thomas Moore Price.)

Q. Beyond that time do you know where they got their base lines?

A. Well, I don't understand, quite.

Q. Do you mean to say, Mr. Price, that your engineers went to the mouth of the tunnel at the place you said you set your base line and continued to work every time they wanted to run a line in the tunnel after they got clear back?

A. Oh, no, they set their lines [1404] in the tunnel; they were on the bench marks.

Q. What were the bench marks on?

A. On the timber.

Q. Those timbers you told us moved quite a bit?

A. Yes.

Q. Did the bench marks move with them?

A. I presume they did. By that time the next point had been established. This was in the heading, not behind.

Q. Did you ever give your own engineers a single direction as to how they should do their work?

A. No, I did not.

Q. As a matter of fact, you don't know what they used for a base line in those tunnels, do you, of your own knowledge?

A. Well, I understand they used the base line outside of the tunnel.

Q. Do you know of your own knowledge what your engineers used as a base line in the tunnels?

A. Not of my own knowledge, No.

(Testimony of Thomas Moore Price.)

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.)

[1405]

Afternoon Session

THOMAS MOORE PRICE,

Cross Examination (continued)

Mr. Tinning: Q. Mr. Price, did you find the memorandum of your conversation with Mr. Boggs, in December of 1934?

A. Yes. It was not as long as I thought.

Q. This memorandum of discussion is that

"Mr. Barlow and I discussed the matter of tunnel engineering with Mr. Boggs, and I feel somewhat weakened his position. At any event he asked for plans and descriptions of the work we desired the District to do, which has been done. If I hear nothing from him soon will push the matter further."

Well, this memorandum was apparently written on December 28, 1934. When you said, "which was done," you meant you had written a letter on December 26th? A. Yes.

Q. This memorandum you made of a conversation was December 28th,—the date it bears,—when you dictated both, to someone in the organization, as to what you had done on the 24th and the 28th?

(Testimony of Thomas Moore Price.)

A. Yes. I don't remember the date the 24th, exactly.

Mr. Tinning: Gentlemen, thank you for producing the two letters that I asked for. I agree with you that they are immaterial.

Mr. Marrin: All right.

Mr. Tinning: Q. Mr. Price, during the noon hour did you have a chance to check over the records of your organization to determine the yardage that we were discussing before lunch?

A. Well, not a very good chance; I found we did not have the records at the place where most of our records are kept now. I asked our auditor to go down to the other office; and, in the short time he had, he found the indications were that the District had paid us for approximately 42,000 yards of the west portal approach cut, and that there were approximately 26,000 cubic yards in the building [1406] which was excavated, in the lump sum. I, personally, did not get a chance to look at the records here, myself.

Q. Is it your recollection, Mr. Price, that, in addition to 42,000 yards that you were paid for, there was other material at the west portal on which the District did not pay you, by reason of the fact you excavated beyond the line that the District's plans called for?

A. I am not clear on that point. I presume that is correct.

(Testimony of Thomas Moore Price.)

Q. Well, you remember the correspondence that we had here with respect to slides on the west portal cut? A. Yes.

Q. In which, as I recollect, roughly, the Contractor was seeking to be paid for additional material there, and, as I recollect it, the District said the only pay material was the material that would come within the prism that is shown on the plans?

A. Yes.

Q. That 42,000 yards you were paid for there: can you tell us where that was placed?

A. To my personal knowledge, I don't know. I think most of it was placed in the fill at the west portal.

Q. When you went over those figures, Mr. Price, did you distinguish between material that came out of the west portal building and what came out of the west portal cut—rather, those two separate pay items? A. I attempted to explain that.

Q. Was the 42,000 the total of what was taken out?

A. That is the point I am not clear on. I think that much was taken out and paid for on the west portal approach.

Q. Isn't it true, in the building, that 26,000 cubic yards was taken out and paid for by the District? A. That is what our record indicates.

Q. So, in addition to 42,000, there was 26,000, or that would be 68,000 cubic yards of material that came out? [1407] A. Possibly, yes.

(Testimony of Thomas Moore Price.)

Q. Well, you add them together? That is what it indicates.

A. I was not there at the time, Mr. Tinning, and I have not had a chance to thoroughly work the thing out. I think that is correct.

Q. From the data that you had up to this time, which you got from your auditor,—the figures we just discussed are correct; and you were paid for 68,000 cubic yards of material moved at the west portal excavation,—the 26,000 that came out from the building, and 42,000 that came out west of the building in the approach cut?

A. Yes. I would like to make it clear, though, that was two different kinds of payment; we got no payment as such for the yardage of dirt out of the portal building; that was included in the lump sum price for the building, as I recall it. We did get paid by the yard for the excavation up to the building, I believe.

Q. Mr. Price, the thing we are trying to arrive at here is a reasonably accurate estimate of the yards of material that were removed from the west portal, not how you were paid for it; but the District's records, I should say, coincide with your statement, and it shows there was approximately 68,000 yards of material moved from that place and placed somewhere else. Now, I am asking you where that 68,000 yards went.

A. Well, I did not see it moved; but I would presume it went in this roadway fill west of the tunnels, and in the fill for the plant.

(Testimony of Thomas Moore Price.)

Q. How much would you say went into the west roadway fill?

A. Oh, I wouldn't be able to say. I would have to guess at it. I would say approximately 80 per cent.

Q. Approximately 80 per cent?

A. 75 to 80 per cent.

Q. Let's take it this way: Let's say 75 per cent of it, and 25 per cent of it went into the fill that you made for your muck bunkers and the railroad yard and the blacksmith shop—Is that about right?

[1408]

A. All these figures of mine that I am giving are guesses. I don't know. I am just estimating. That would be my estimate at the moment.

Q. Yes, your estimate. Of that 75 per cent of material in the fill, 75 per cent of 68,000 would be in the neighborhood of 51,000 cubic yards of material that went into that roadway fill from the west portal building and west portal approach cut?

A. Approximately, yes.

Q. You told Judge Roche the other day, in testifying, when he asked you a question regarding the quantities that you figured about 170,000 yards of the tunnel material was required to make the embankments in the portions of the roadway west of the tunnel?

A. I said our engineers figured it.

Q. Well, you took that from your records. You were project manager?

(Testimony of Thomas Moore Price.)

A. Yes; the records say that.

Q. You said you thought, from what you took out of the tunnel, that you had approximately 37,000 cubic yards more material in the tunnel that you required to fill those embankments west of the tunnel?

A. Well, that, you see, was the basis of moving the dirt from the tunnel, which we did not do and did not claim—You mean the portions we worked, or the portions—

Q. You used the figures—

A. That was all estimates of approximately 207,000 neat yards in the tunnel, regardless of who excavated it.

Q. Regardless of who took it out? A. Yes.

Q. So that, at the beginning of the job, when you were setting up the balancing of the materials, where you would place them, you planned that you would have approximately 37,000 yards of extra material from the tunnel that you would have to place somewhere other than in the embankments?

A. Yes. [1409]

Q. And the 170,000 cubic yards required for your embankments—

A. My understanding is we had—

Q. Well, that was your testimony.

A. I am trying to explain what I meant to say at that time, if I said it or not. My understanding is our engineers stated we had 170,000 yards of material from the tunnels that had to be compacted in

(Testimony of Thomas Moore Price.)

this fill on any excavation for which we received pay quantities,—that is, of the yards that are not included in the 170,000 yards.

Q. That was because you had to take your material out of the tunnels as a lump sum bid?

A. Yes.

Q. So, you did not get paid for that yardage?

A. Yes.

Q. You had a space in the fill to take care of 170,000 cubic yards?

A. Which would not be compacted from any other price.

Q. Yes. We are not talking about price now. We are talking about yards. You had planned, in that 170,000 yards, or the space required for 170,000 yards—you had already placed, before you started any tunnel excavation, 51,000 yards from the west portal building and the west portal cut?

A. No. That was the point I was trying to explain to you: This material from the west portal cut, the District paid us by the cubic yard, and on any material which the District paid us by the cubic yard, it is my understanding that the compaction was figured in the price which we bid to the District; so that the only portion of the 170,000 yards which went into the building was that yardage for which the District did not pay us on a bid price but on a lump sum price. On that basis, the material from the building and from the tunnel would

(Testimony of Thomas Moore Price.)

be in the 170,000 yards, but not the material from the approach cut.

Q. How many thousand yards of material did you have in the tunnel altogether?

A. You mean that we excavated?

Q. Yes. A. I don't recall.

Q. Well, I will show you: [1410]

Q. I will show you Defendant's Exhibit N, that is the August schedule, and, incidentally, the February schedule figure that I am referring to is exactly the same, 230,000 cubic yards was what you estimated in your schedule would be required for the fill in the tunnels, from Station 106 to 76?

A. I think that is 78.

Q. I did not read them correctly; from station 106 to station 78. Between those stations is where the tunnel fill went, is it?

A. Yes, approximately.

Q. So that by the estimates that you hold there now it appears that you had 230,000 cubic yards of material to deposit from the tunnel in the fills. Is that correct?

A. This estimate indicates that, but it is not an estimate in the first place, but it is a proposed progress schedule which indicates that. However, I studied the estimate, itself, and I learned they only estimated 170,000 yards to be compacted rather than 230,000 cubic yards to be compacted. I think

(Testimony of Thomas Moore Price.)

this 230,000 cubic yards compacting figure is in error from that standpoint.

Q. It is an error of the Six Companies and it was sent to the District on two separate occasions, one on August 9, 1934, and again on February 12, 1935.

A. Might I say further, Mr. Tinning, the error is not an error in yardage, but an error in the amount to be compacted. I think the yardage is supposed to be the yardage to be moved from the tunnel, regardless of what was to be done with it.

Q. The 170,000 cubic yards that you referred to in your testimony means cubic yards of material in place in the highway embankment fill?

A. That is my understanding.

Q. That is what you testified to, that is what you were referring to, in place? A. Yes.

Q. How many yards of material in addition to the 170,000 cubic yards that you have referred to were necessary to place in that fill [1411] to build it according to the plans and specifications from station 78 to station 176?

A. I am sorry, I do not understand you.

Q. Read the question.

A. I am unable to say, I didn't know that there was any.

Q. There was not any more?

A. I don't know that.

Q. When you testified here you testified that it took 170,000 cubic yards of material to build the

(Testimony of Thomas Moore Price.)

fills from station 106 to station 78. Wasn't that your testimony?

A. That is not stating it exactly as I stated it. I had estimated that it would take 170,000 cubic yards to make the fills at the west portal of compacted material.

Q. Isn't that the same thing, 170,000 cubic yards measured in place in the embankment.

A. Yes.

Q. So it took 170,000 cubic yards in place to build that road? A. I am unable to say.

Q. And of that 170,000 cubic yards you have now testified you supplied 51,000 from the west portal cut and the buildings? A. No.

Q. What did you supply?

A. My understanding of the 170,000 cubic yards is that that yardage, over yardage paid for by the district as a unit price.

Q. Mr. Price, let us forget all about the price.

The Court: We are dealing in yards only.

A. I can answer it no other way. We had two separate payments to be paid for by the cubic yard; we bid on each by the cubic yard. In our bid we had an amount set aside for compacting. We did not have any amount in that for compacting the dirt from the tunnel and from the buildings, and we had to estimate that and put it in addition. That is the 170,000 I am speaking of.

Q. How many yards went into the fill, do you know?

A. No, I am unable to say. [1412]

(Testimony of Thomas Moore Price.)

Q. Who does know, if you know?

A. None of our people know, I do not think. I do not think it was ever estimated.

The Court: Proceed. I see I have failed.

Mr. Tinning: It is modest to say that I have failed tremendously at this point by seeing if we could get anything.

Q. Your neat section you testified, in response to Judge Roche's question last week, the neat amount of material, you used the words, required in the west portal of the tunnel to the point on the west where you ceased to use the tunnel muck for embankment fill was 170,000 cubic yards. You had a design for doing all that you had to build, didn't you? A. Yes.

Q. If you cared to make that embankment thicker or bigger in wasting material you had a right to do so so long as you stayed on the district right of way, didn't you?

A. Provided it met with his approval.

Q. As a matter of fact, that is what you did there, is it not? A. Yes.

Q. That embankment is considerably wider at the base and at the top than the neat section that required 170,000 cubic yards? A. I think it is.

Q. So that you did mean what you had to put in there was 170,000 cubic yards and you had to use that from somewhere in that neighborhood as an economical basis of operation? A. Yes.

Q. Now, of that 170,000 cubic yards, before you started excavating the tunnel, you had placed in

(Testimony of Thomas Moore Price.)

the embankment 51,000 cubic yards. Perhaps we do not understand each other, Mr. Price.

A. I am afraid we don't.

Q. It is evidently my fault. You certainly made the building excavation before you dug anything out of the tunnel, didn't you? A. Yes. [1413]

Q. And you made the west portal cut before you dug out the tunnel? A. Yes.

Q. You had to put that earth some place, didn't you? A. Yes.

Q. You carried it down on your railroad and put it into this embankment?

A. I don't know that. I was not there. I don't know how it was moved. I believe by a truck.

Q. Mr. Price, how many cubic yards of earth were excavated by Six Companies in each lineal foot of tunnel excavation?

A. 42 to 43 yards.

Q. Isn't it a fact that the records show 45?

A. I do not think so. My memory is 42, between 42 and 43.

Q. 42 or 43?

A. Somewhere in that neighborhood.

Q. Your neat section was 35.6 cubic yards per lineal foot of excavation: is that correct?

A. Yes.

Q. You think you had about 20 per cent excess?

A. Yes.

Q. Would you quarrel with the District record if it showed it was 24.6 per cent?

A. I do not quite understand.

(Testimony of Thomas Moore Price.)

The Court: Q. Would you approve their figures as reasonable or not?

A. You mean the excess excavation was 24.6?

Mr. Tinning: Yes, would you quarrel with the District figures?

A. I do not want to quarrel. My memory is it was 43 yards, and I could not change them unless I could refresh my memory.

Q. What I have in mind is that you had approximately, you say you had 43 cubic yards per lineal foot. Will you figure out how much earth you had out of the tunnel on April 1, 1936 in cubic yards? There was 3,193 feet completed on April 1st, fully excavated. A. 3,193?

Q. Yes. A. At 43 yards?

Q. At the west portal.

A. I get 137,300 cubic yards, approximately.

[1414]

Q. And you had 51,000 yards out of the west portal buildings and the west portal approach cut. Will you add those two?

A. Approximately 188,000.

Q. You only needed 170,000 to finish the fill?

A. Yes, Mr. Tinning, but you do not understand me, when I say the 170,000, it was excessive dirt that came from excavation paid for by the District as such.

Q. I confess I do not understand you, but the

(Testimony of Thomas Moore Price.)

fact is you required 170,000 yards to build an embankment west of the portal from tunnel material and by April 1, 1936 the material that had been placed in that fill and what had been excavated from the tunnel that you wanted to put in the tunnel, you had 188,818 or 18,818 more than you required to complete the fill on the west portal?

A. No, I cannot agree with the figures given, because I estimated we had only to compact 170,000 cubic yards; any addition to that we were paid for at the unit price; I don't know how much earth there was in the fill; I think that is probably where we are confused; I don't know the amount of dirt that was required in the fills. All I know is they estimated that 170,000 cubic yards would have to be compacted, on which we had not been paid for on the unit price of excavation.

Q. Under the specifications you were required to make the fill west of the portal out of tunnel excavation. You did not get paid for that, did you?

A. That is the yardage I am talking about.

Q. That is what made up the cut Under your schedule of August 9, 1934 you show that you expected to do the macadam pavement on the portions of the highway between station 75 and station 111 in 25 days, from October 5 to 30. That is correct, is it not? A. Yes.

Q. From April 1, 1936 to May 24, the completion date under the [1415] contract was 54 days, was it not? A. I would have to check it.

(Testimony of Thomas Moore Price.)

Q. Just add it, there are 30 days in April and 24 in May. A. April 1 to—

Q. April 1 to May 24. A. 54 days.

Q. Your estimate that you gave the District for doing that work was to be done in October, was 25 days; was the estimate unreasonable?

A. It looks a little short to me.

Q. How long do you think you should have to complete that 3,000 feet or 2,500 feet of oil macadam pavement?

A. I believe you might do it in a month.

Q. About a month. It was five days short?

A. Yes.

Q. All right, look at the schedule that you delivered to the District on February 12, 1935, and you will see where you take the 54 days as a proper figure, and you were going to finish on May 24.

A. Yes, but that includes cleaning up, etc.

Q. So that you think about 30 days is plenty of time to do that work?

A. Under the conditions I think it would be, without any delay.

Q. What subcontractor had the subcontract to do the paving on this job?

A. N. M. Ball & Son.

Q. Was it Ball who did the paving up on the old Tunnel road and down at the west end?

A. Yes.

Q. And that is all he ever did on that job?

(Testimony of Thomas Moore Price.)

A. All the paving.

Q. When was he relieved from his contract?

A. He was never relieved.

Q. He was still waiting around on June 13, 1936 to do that work?

The Court: Or did he leave the job?

A. He did not leave the job. He still had the subcontractor for him working on the structure at that time.

Mr. Tinning: I am talking about the Ball outfit, I do not consider that Mr. Bohnett or Mr. McKinley, or somebody else that [1416] had a subcontract out there under Ball. Ball, as I understand it, worked his own force on paving and subcontracted all the other work that he undertook to do under his original subcontract?

A. I think that is essentially correct.

Q. Is there anything fundamentally wrong with it? A. I do not recall at the moment.

Q. I would like to get it clear. We have been through the subcontractors and Mr. Ball was the first man employed by the Six Companies on the outside work—he had a contract for everything on the outside? A. Except the grading.

Q. McKinley had the grading and Ball had all the outside structures?

A. The portal buildings were subcontracted to another party.

(Testimony of Thomas Moore Price.)

Q. The portal buildings, under their own schedules, are not called outside structures, they are separate structures, so that the portal buildings K. E. Parker had, and McKinley had the grading, and Ball had all of the outside structures, I mean under your own designation. A. Yes.

Q. And all of the work that Mr. Ball's own outfit was doing was the paving on the tunnel road at the west end. Was there any paving done at the east end?

A. Nothing except the detour, as I recall it.

Q. When did Ball move off the job?

A. He did not move off the job.

Q. Was he waiting around there to finish the paving sometime in the summer of 1935 till the 13th of June, 1936, ready to go to work on this paving? A. Yes.

Q. Standing around all the time with his equipment and ready to go?

A. I cannot say about standing around. He was doing other work in the meantime.

Q. What was he doing?

A. He was contracting other jobs.

Q. You mean on outside jobs? A. Yes.

[1417]

Q. I mean on this job.

A. No, he was not doing anything except finishing structures on his subcontract.

Q. Somebody else's work on subcontract?

A. No; Mr. Balls'.

(Testimony of Thomas Moore Price.)

Q. McKinley had a grading contract, and you said that the District did full service outside of all engineering. Didn't McKinley have an engineer working with him? A. Yes.

Q. Mr. Powers? A. Yes.

Q. Then when McKinley got through his grading Mr. Powers was employed by Mr. Bohnett?

A. Yes, I think that is right.

Q. So there was a slight amount of services done on the outside by somebody else besides the District?

A. My understanding of these men was they were checking the quantities so as to be sure to get the proper payments.

Q. They were checking the District surveyors?

A. Yes.

Q. The other day when you testified you said that the normally accepted method of driving a tunnel as you understood it was keeping the concrete from 200 to 300 feet back of the face, the excavated face of the tunnel. Do you remember that testimony?

A. I don't remember stating it exactly in that way.

Q. It is on page 866 of the transcript.

The Court: Q. Do you recall that statement?

A. I would not say that that statement is entirely correct, your Honor. The normal accepted way of driving a tunnel is to complete the tunnel before any concreting is done in the tunnel.

(Testimony of Thomas Moore Price.)

Mr. Tinning: Q. Mr. Price, when you made that statement did you do so with the knowledge of the fact that the Richmond Tunnel, Pt. Richmond Tunnel, on the San Francisco Bay shore, some 1,400 feet long, and larger in cross section than this was entirely drifted through, ringed out around the perimeter and the lining placed before the core was removed? A. I didn't know that. [1418]

Q. Do you know of any tunnel over the size of some particular drift in this tunnel that was entirely excavated before it was lined with permanent concrete?

A. The Boulder diversion tunnel was that way.

Q. That is not exactly in this vicinity.

A. I did not understand you were talking of this vicinity.

Q. I am talking about the Coast Range Mountains and the vicinity of San Francisco Bay.

A. I don't know of; I don't know of any tunnel as large as this except the Yerba Buena.

Q. Was the Yerba Buena built that way?

A. The Yerba Buena core was left in place.

Q. It was not excavated before it was lined?

A. No. That is the only tunnel that compares with this in size.

Q. Why did you call it the normal way? Were you referring as a basis for your answer to the Boulder Dam tunnel?

A. By "normal way" was referring to the nor-

(Testimony of Thomas Moore Price.)

mal way of concreting, namely, using movable steel forms.

Q. When you spoke about the normal accepted method of excavating and concreting you were referring only to lining with cement with steel forms?

A. Yes, that is what I mean.

Q. You had 800 or 900 feet of tunnel open in each bore of the Broadway Tunnel before you started your normal concrete operation, did you not?

A. Well, it is a matter of record, but I could check it up again, but I will say somewhere around there. It might have been a little more than one or a little less than the other.

Q. We will average it up. You knew in May 1935 that the timbers were moving?

A. The latter part of May.

Q. Had anyone told you during the preceding months from December to May that it was likely that the timbers would start moving if you did not get the concrte in?

A. I do not recall any advice to that effect.

Q. What about your guiding star?

A. He never did. [1419]

Q. He never told you? A. No.

Q. You knew, didn't you, when you were in charge of this work, that in the Sacramento Northern Tunnel, approximately a mile or a mile and a half away, that there had been a great deal of difficulty in holding the timbers?

(Testimony of Thomas Moore Price.)

A. No, I did not know it at that time.

Q. You didn't know about that? A. No.

Q. You have learned since that is true, haven't you?

A. No, I can't say that I did, except I understood from one of the men who was on the job they had some difficulty near one portal, and the rest, my understanding is to the effect that the tunnel was timbered and left open, and that the Sacramento Northern annually made an effort to put in a little concrete, and eventually I believe they got it concreted all the way through, but I am not sure of that fact.

Q. Have you ever been through the tunnel?

A. Only on the train.

Q. The same way you inspected the one at Oleum?

A. No, I inspected the one at Oleum from the rear end. I did not this other.

The Court: The train was not going very fast at that point?

A. I might say the Oleum tunnel is a larger tunnel.

Mr. Tinning: Q. Much larger in size than the Sacramento Northern? A. Yes.

Q. Your knowledge you gained from the inspection you expected to use in the Broadway Tunnel?

A. No, I do not claim that.

Q. After you discovered that the timbers were

(Testimony of Thomas Moore Price.)

moving, Mr. Price, did you continue to measure them?

A. No, we did not do a great deal of measuring until in the August period, as I recall it; we watched them carefully, the tunnel superintendent watched them carefully.

The Court: August, 1935?

A. August, 1935. I don't recall measuring them particularly at that time.

Mr. Tinning: Q. In other words, during the months when your [1420] consultants came on?

A. Yes, I believe so.

Q. After that you began to take measurements of the timbers? A. Yes.

Q. And you discovered, did you not, Mr. Price, that this was a progressive movement, increasing rapidly as time elapsed?

A. Yes, in the portion we had last excavated.

Q. And that the only way to control the movement once it had started was to reset timbers?

A. At first, during July, apparently there was no movement in the arch, as far as we did detect or could detect, the movement was in the side wall against a plumb post, and we noticed it by the plumb posts bowing and breaking.

Q. Did you have any jumbo or other apparatus by which you could measure the arch in July?

A. No, but we had a catwalk up there, and it was inspected daily.

Q. In other words, it would have to be visible,

(Testimony of Thomas Moore Price.)

you did not take measurements of particular timbers?

A. No.

Q. You didn't know that there were any particular stresses on the segments of the arch as they went up until in August?

A. Not in general, but in the plumb posts.

Q. These plumb posts that you described yesterday were particularly around this Wildcat fault area that were giving you difficulty?

A. They were in the cherts section, all of it. I never could distinguish any fault through there at all, unless it was all fault.

Q. You never saw any fault?

A. Unless it was all fault, there was not any difference in it.

Q. You went through the Wildcat fault and you didn't notice there was any difference in it?

A. I did not. I hoped to get out of it every day, which we never did.

Q. You said that you had considerable difficulty about getting your concrete started and spent some time on Friday and the day [1421] before discussing that. The matter of ordering forms was a matter for the decision of the contractor, was it not?

A. Yes.

Q. I think you testified it was April 21 when you finally ordered forms, is that correct?

A. April 13.

Q. April 13? A. April 13, 1935. [1422]

(Testimony of Thomas Moore Price.)

Mr. Tinning: Q. You knew in December that you planned to use steel forms, didn't you?

A. We hoped to use them, yes.

Q. On June 7th of 1934, Six Companies sent the District a plan of steel forms, did they not?

A. I am not sure.

Q. And throughout the entire plan of progress, you had expected to use the method of using steel forms in these tunnels? A. Yes.

Q. No steel form was ordered until, you now state, the 13th of April, 1935?

A. None were ordered until that date.

Q. It was approximately 10 months after the contract date? A. Yes.

Q. And you were several hundred feet underground in April, and by the time the steel forms were on the job, it took some time into June before they were ready, you had progressed or driven a couple of hundred feet further into the hill. I am using round numbers. A. Approximately, yes.

Q. You stated something about the time that you had to hold your forms,—the difficulties involved in that. You knew, from your specifications, that the District Engineer could provide that you would have to hold your forms 21 days in places of heavy pressure, and that, in all concrete arches, you might expect to have to hold them 72 hours, which was in the specifications?

A. Yes, I knew that; but I did not think anybody would ever be so crazy as to enforce that time,

(Testimony of Thomas Moore Price.)

on concrete forms. I don't mean "crazy"; I mean "unwise."

Q. You think it was too slow?

A. Entirely too slow.

Q. You knew about these provisions, though in the specifications, didn't you? A. Yes.

Q. And the specifications were the same when you bid,—when Six Companies bid,—as when you came on the job on September 20th?

A. Yes, sir. I wish to say, again, though, that is an unheard of procedure, and I don't think ever was the practice anywhere, nor was the practice at Broadway. The practical time he finally got it at [1423] was 24 hours except in places of pressure.

Q. How long did you hold your wooden forms?

A. Well, it was not a question of holding them. If we had any difficulties, I don't think there is any record of it.

Q. I am talking not about the contractor's convenience or desire to get along with a minimum number of steel forms, which were, of course, expensive pieces of equipment. I am talking now about the integrity of the structure to secure lining of a hardness and strength which permits support of the weight in moving ground. Isn't it a fact that, wherever you built wood forms, as shown on your diagram, Plaintiff's Exhibit 74, those were installed in places where the ground was showing pressure;

(Testimony of Thomas Moore Price.)

at the time the concrete forms were installed there had been moving of the timbers? A. Yes.

Q. And, in all of those places where you placed wooden forms, you were holding 21 days?

A. I do not think so. I don't recall we were holding, any particular time. There was no requirement that I can recall of ever stripping timber off. We could not do much when they moved back.

Q. So the fact they remained there some length of time had nothing to do with the fact that it was necessary to support the concrete arch until, in these moving areas, the concrete had acquired its strength by seasoning for 21 days?

A. I don't think so. I have a memory that we stripped a lot of those forms in 10 days; but I am not positive of it.

Q. In the sections where you did not have wood forms, after you got started and it was determined what the setting strength of your concrete was, by test, you were permitted to remove those forms in what time?

A. Progressively; the first 5 days for some period of time after we started on the east of the portal concrete—I don't mean "5 days." I mean "72 hours"; and then, I believe, 48 hours and, [1424] finally, 24 hours.

Q. That is the way you worked through the majority of the tunnel, then, is it not? A. Yes.

(Testimony of Thomas Moore Price.)

Q. Have you ever seen the collapsible steel form which can be collapsed in sections and carried forward through to the new fresh work underneath the remainder of the steel form?

A. Yes, I have.

Q. That is a common practice, is it not, in using steel forms in tunnels?

A. I think it is, particularly in smaller tunnels.

Q. You consider the Sunset Tunnel, here in San Francisco, a very much smaller tunnel than this?

A. Yes, I think considerably smaller.

Q. You think the problems that they had there are not comparable to the problems here?

A. No; I don't think so. I don't think they are comparable in size and in shape, particularly in shape.

Q. The Sunset Tunnel had a top or cross-section of 29 feet, which is 35—29 cubic yards per lineal foot; and this was 35,—the neat design?

A. 36, isn't it?

Q. Not very much difference, was there?

A. About 33 per cent—35 per cent.

Q. Between 29 and—25 per cent smaller. The Sunset Tunnel was a big tunnel?

A. I will take it the other way, to get a bigger figure; that much bigger than the Sunset Tunnel.

Q. I see. Mr. Price, it is true, is it not, in the Sunset Tunnel, that the contractor provided 120 lineal feet of steel forms that were in sections and folded down and moved up ahead into the fresh

(Testimony of Thomas Moore Price.)

work underneath the forms which were holding the concrete up until it seasoned?

A. I understood he did move them underneath, but I don't recall that anyone ever told me about how many feet he had.

Q. As a tunnel engineer of experience, you would not say he did not [1425] have 120 feet?

A. No; I wouldn't know.

Q. How many lineal feet of form did you have in this tunnel?

A. We had 36 in each tunnel.

Q. That would be 72? A. 72 feet.

Q. You had 6000 feet of tunnel in contemplation when you started? A. Yes.

Q. You stated, the other day, Mr. Price, that you referred the question of the steel forms to Mr. Boggs on February 9th, and you had no reply until March. Isn't it a fact that, during all of January, February, March, April, May, June, there was a man named Counzelman working for Six Companies who was in direct charge of the design of the steel forms? A. Yes.

Q. Isn't it a fact that he was in almost daily communication with the District Engineer, throughout this period? A. Yes.

Q. And he was reporting to you what the suggestions were that were being made by the District Engineer?

A. Yes, he was working with them, trying to get the answer.

(Testimony of Thomas Moore Price.)

Q. And, from day to day, he received answers on these matters, and he was told that the chutes that he provided in the manifold forms that were shown on your plan of February 9th would be likely to plug and block in the same way you had found trouble when you used the Hackley gun?

A. I am not clear on what you mean.

Q. You will remember your February 9th plan had some chute or tube that ran down. You have a poster here, gentlemen, that shows that.

The Court: We will take a recess while you are looking it up.

(Recess) [1426]

(After Recess)

Mr. Tinning: Q. Mr. Price, we were discussing the steel forms shown by the plan which accompanied your letter?

The Court: I am familiar with this.

Mr. Tinning: Q. —your letter of February 9, 1935; and I asked you if it was not a fact that Mr. Counzelman was advised by the District people that they thought he would have difficulty with the manifolds that are shown on this plan leading into the concrete forms.

A. I don't recall that; but I do recall that they suggested that we would have trouble in preventing segregation as the material discharged from the chute.

(Testimony of Thomas Moore Price.)

Mr. Smith: What exhibit number is that, Mr. Tinning?

Mr. Tinning: Exhibit 62.

The Witness: The principal problem we were worried with was the discharging from the pipe into the forms at various points.

Mr. Tinning: Q. Well, you did not have to wait until March to get that information from the people who were consulted by Mr. Counzelman; you stated you did not get any reply to your letter of February 9th of 1935 until some time in March?

A. We never did get a written reply from them.

Q. Did you get any information from the District as to whether or not it was a plan which they thought would be satisfactory?

A. I don't recall anything particularly, with the exception of Mr. Bogg's position on pouring concrete.

Q. What was that?

A. While he would not stop us, if we wished to pour the lining integral with the furring concrete, nevertheless he did not feel it would be a good plan to do so.

Q. He did not believe it would be satisfactory, because he thought it might endanger some of the members that had to be poured into—

A. Yes; the ventilating flues.

Q. Looking at Exhibit 74, the furring concrete that is referred to [1427] is this material I am

(Testimony of Thomas Moore Price.)

pointing to, in the interior of the arch, or it is no part of the structural arch that holds up the mass, the ground?

A. It is the lighter shade of concrete against the side wall in the cross-sections.

Q. You were desirous, when you presented that plan of trying to work out a method, of pouring all of the material that is shown below the ventilating slab at one pour? A. Yes.

Q. In about every few feet was a metal duct, shown by the dotted lines, leading from the ventilation slab down to a point about 4 or 5 feet above the floor of the tunnel?

A. I believe they were on 12 foot centers.

Q. 12 foot centers. Those were—They are wider at the top and come down narrow at this point, and then, with a nozzle at the bottom that carries the fresh air from the fresh air duct down through the concrete and into the tunnel at a point 4 or 5 feet above the base? A. Yes.

Q. Those were about 12 feet apart; and there was about 2 inches of concrete over their face, was there not?

A. Approximately; I do not recall.

Q. A thin section? A. A thin section.

The Court: In the chamber?

Mr. Tinning: This duct, your Honor, is a steel chamber that leads down between— It is a pipe that leads down,— a flattened pipe that leads down

(Testimony of Thomas Moore Price.)

from the air duct, at the top of the tunnel, and carries the air through the concrete. It is a conduit.

The Court: Oh, I understand.

Mr. Tinning: And those were 10 feet apart; and lightly constructed of metal; and there was a section between each, where the concrete would have had considerable additional space where there were no ducts, so there was a complication there, in trying to get the concrete in and out, was there not?

A. No. I did not [1428] think there was any complication, getting the concrete in and out. I thought it would be easier to get it in through the opening at the top. The principal difficulty was due to the thickness of the metal in the ventilating flues, —the hydrostatic pressure might damage it.

Q. Yes. So you would not get the air circulation for which the tunnel was designed?

A. Yes.

Q. On the other side of the tunnel, there were electric conduits, called for in the plans and specifications, that carried wiring—

A. Yes; soapstone conduits.

Q. Which would also present difficulty with respect to displacement and so on? A. Yes.

Q. Upon concrete being poured in?

A. Yes.

Q. That method was, from your talk with Mr. Boggs — he said he would not forbid you to do it; but you finally decided to abandon that method?

A. Yes.

(Testimony of Thomas Moore Price.)

Q. And go on to another one?

A. He got me scared on it.

Q. He did not mislead you in that respect?

A. Not that I recall. [1429]

Q. In your plan of April 2, 1935, Defendant's Exhibit II, you prepared another method of handling this concrete after you got it out of the pipe, and that was the so-called "elephant trunk"?

A. No, you are confused in the drawing; that is in the side elevation shown as a chute following the form down to the port into the form, so that the concrete would be shot into the form at various elevations.

Q. Was the form built that way?

A. Yes, it was built that way, and changed on the job.

Q. After you got it on the job you adopted a method of putting your concrete in near the top of the arch and letting it down with an elephant trunk inside? A. Yes.

Q. It is a fact, is it not, that you had a meeting with respect to the design of the steel forms at Mr. Boggs' office on February 2, 1935?

A. I do not recall, Mr. Tinning, possibly so.

Q. Do you remember being present at a meeting later of Mr. Counzelman, yourself, Mr. Boggs, Mr. Barkley, Boggs' assistant, and Davis, of the District Engineer's Office, Mr. Brown, and C. H. Sweetser, of the Bureau of Public Roads, in which you outlined the proposed method of placing concrete? A. As I say, I don't recall.

(Testimony of Thomas Moore Price.)

Q. You don't recall that? A. No, I do not.

Q. And don't you recall that following that meeting Mr. Boggs wrote you a letter of February 5, asking you to present your sketches, which you sent him on February 9th?

A. I know he wrote a letter. I do not recall the meeting. I do not deny that, but just at the moment I do not remember it.

Q. You do not recall that? A. No.

Q. When you sent him that schedule on February 12, 1935, you showed the proposed plan of concreting operations on the first of May?

A. Yes.

Q. You did not have your steel forms ordered until the 13th of April, [1430] and they were not delivered on the job until sometime in June?

A. That is right.

Q. Isn't it true that following your conversation with Mr. Boggs on February 2nd, and all of these other gentlemen present, that Mr. Counzelman was in consultation with Mr. Collins, one of the District Engineers, and in charge of the concreting for the district on many days during the period from February 9 to February 12, 1935, up to and including the time that actual concreting operations started?

A. Yes, I believe that is so.

Q. And with respect to all of these details that you proposed you had suggestions from the District Engineer, I am referring to Mr. Collins, and his discussions with Mr. Counzelman with respect to

(Testimony of Thomas Moore Price.)

all of the details which were taken up from time to time with the District Engineer?

A. I could not answer that yes, because Mr. Counzelman reported to me in these conversations the general answer was that he did approach the District Engineer's representative to get an approval on something, and there was no suggestion as to improvements on it, or anything else; the only answer that we could get was that would not be acceptable or that would be acceptable. For instance, taking a little matter about the ventilation hangers, the steel members that were embedded in the concrete lining to support the ventilation flues, it was difficult to construct them because it required welding in the tunnel, which was against the regulations of the Industrial Accident Commission, and they stuck down in the tunnel as they were designed, and interfered with the movement of the forms. And that was one of the principal things Mr. Counzelman was working on, as well as the ventilation flues. Mr. Boggs worried me about the ventilating flues being distorted and disturbed by any attempt in pouring concrete around them, and I knew that sometime we had to pour concrete around them, [1431] because they had to be embedded in concrete, and they are subject to some hydrostatic pressure, not as much as in the forms, and I conceived the idea of changing the design of the hangers and ventilating flues, and that was one of the principal

(Testimony of Thomas Moore Price.)

things that Mr. Counzelman was working on and endeavoring to get that design changed.

Q. He did not get it changed, did he?

A. Yes, we got both of them changed. We never did make the changed designs of the flues. We went back to the metal flues after we had been able to get the district to change the method. He let the manufacturer fabricate them, and all of these changes of hanger designs completely changed it.

Q. What was the difference in the design of the hangers? The hangers are these metal pieces shown on Plaintiff's Exhibit 54, the members which hold the ventilation slabs? A. Yes.

Q. What was the change in the design?

A. The hangers shown by the plans consisted of a flat bar of steel cast into the concrete projecting downward into the tunnel approximately 9 inches, as I recall, at each one of these places, and the plans of the job provided for welding these additional bars onto these hangers. That at the time was not practicable, because we were prohibited from doing any welding in the tunnel.

Q. How did you work it out?

A. I worked it out by designing a casting which would fit up inside of the concrete that had threads in it, so that these hangers could be rounded off, and screwed up into the concrete and thereby giving us a hanger flush with the concrete.

Q. You knew that the specifications and plans were matters of your own consideration, that those

(Testimony of Thomas Moore Price.)

had to be worked out. That was in the plans and specifications?

A. Yes, that is what we designed. [1432]

The Court: Am I correct that your plan was a more economical method?

A. No, I do not think there was much difference in the cost.

Q. As the welding and the operation that you have described there?

A. Possibly some more. I don't know what the welding would cost, we never did it.

Q. I spent a good many years of my life in the iron work business. You would be surprised about it.

A. I have no way of comparing it directly.

Q. You want to be careful. The useful part of my life, when I thought I was producing something, in my younger days, I was familiar with some of these matters that you are discussing now. Proceed.

Mr. Tinning: Q. There was no substantial difference in the price, I understand?

A. I don't know, Mr. Tinning. I have not the costs on it.

Q. It was done for the convenience of the contractor, in working out the method of using steel forms in the way in which he desired?

A. Yes, and for the purpose of complying with the requirements of the Industrial Accident Commission.

(Testimony of Thomas Moore Price.)

The Court: If that was the only problem on this job we would have no worry.

A. It was difficult to get his approval. I believe we asked for it in January, 1935, and we did not finally get the engineer's approval of it until June.

Mr. Tinning: Q. Of course, you were held up all the time in your work, the concrete plant was ready and the forms were ready, and you were just atremble waiting for that?

A. No, I do not claim that.

Q. It did not make any difference?

A. I do not say it did not make any difference. I do not claim that we were held up by it [1433] to any extent.

Q. Did you ever give any consideration toward subcontracting the placing of concrete in the tunnel?

A. I think we did talk about it once upon a time. I think we approached Mr. Hackley on it.

Q. Isn't it a fact that on January 24, 1935, that you and Mr. Stanley Hand went over to the tunnel and discussed the question of Six Companies subcontracting this work?

A. Not to Mr. Hand.

Q. Whom did you discuss it with besides Mr. Hackley?

A. I do not recall just at the moment. I remember discussing it with him once.

Q. Did you discuss it with Mr. Kettlewells?

A. I don't recall.

Q. You don't recall that? A. No.

(Testimony of Thomas Moore Price.)

Q. But you did discuss it with Mr. Hackley?

A. Yes, I remember discussing it with him.

Q. In what month? A. I do not recall.

Q. Was it not in January and February of 1935?

A. It possibly was, I do not recall.

Q. You were just getting under ground and you were not able to make a satisfactory arrangement to subcontract?

A. As I recall it we did not get far with Mr. Hackley. He was either not interested or, anyway, no concrete result came from it.

Q. Either way? A. Either way.

Q. Either in the tunnel or subcontracting?

A. No.

Q. It is true, is it not, Mr. Price, there were other ways of handling electric power in this tunnel than through a box with a motor in it and compressed air, keeping out any explosive gases that might gain entrance to the box?

A. Yes. The only other way, however, I knew was to have a box strong enough, like a box on the electric power, which is operated by batteries, so if an explosion occurred in the motor, itself, the case would be so strong it could not possibly break it.

[1434]

Q. Isn't it a fact that for a great many years there had been electric motors for use in mines, motors built to special specifications and approved by the United States Bureau of Mines?

A. That was the motor I am speaking of.

(Testimony of Thomas Moore Price.)

Q. Isn't it true that those motors could be obtained from General Electric Company on order?

A. Yes.

Q. Why didn't you get them?

A. I tried to get them. It took them, I think it was, about six months to get them built specially for the job. They had to be built specially for this pumpcrete.

Q. As I understand it, you needed about 50 horsepower motors on each side of the pump, two 50-horsepower motors? A. Yes.

Q. Isn't it a fact that they used alternating current motors in the Hetch Hetchy tunnel?

A. I don't know.

Q. Which was constructed a year or two before the Broadway Tunnel? A. I don't know that.

Q. Did you know anything about the Hetch Hetchy tunnels when you were working on the Broadway tunnel?

A. I knew quite a bit from hearsay. I do not recall that particular point, though. One of the particular troubles outside of the motors was running wires into the tunnel and these explosion proof motors that you are speaking of operated by batteries on the trains that run in and out.

Q. Mr. Price, I am asking you if it is not a fact that on the Hetch Hetchy tunnels alternating current motors constructed by the General Electric Company, approved by the Industrial Accident Commission of the State of California were used in a

(Testimony of Thomas Moore Price.)

tunnel in which they had special safety orders due to gas?

A. I knew they were used on locomotives.

Q. I am not talking about batteries, or direct current motors. I am talking about alternating current motors made by the General Electric Company.

A. I don't know that.

Q. You don't know that? A. No. [1435]

Q. And that these motors, new, from the General Electric Company, could be delivered in three weeks' time? A. I didn't know that.

Q. You don't know what the regulations were by the Industrial Accident Commission, then, with respect to the operation of alternating current motors in the Hetch Hetchy tunnels? A. No, I do not.

Q. Did you make any inquiry when you were trying to solve this problem?

A. I do not recall making any inquiry. I made inquiry with respect to air motors from the Hetch Hetchy supply, the warehouse, at Livermore.

Q. For the things that they had been using over there? A. Yes.

Q. How big was the air motor you had on your steam shovel?

A. I don't know, it was a revamped steam engine.

Q. How many horsepower did it deliver?

A. I don't know.

Q. Approximately?

(Testimony of Thomas Moore Price.)

A. I would say approximately, I would just approximate it as 20 or 25 horsepower, I may be wrong.

Q. How big was the steam shovel? What was the yardage capacity of the bucket?

A. A yard, I think.

Q. One yard? A. Yes.

Q. Wasn't it a yard and a half?

A. We had a bucket on there at the beginning which I believe was 1½ yards, and which we found was too large, and I believe we changed back to the old size of the standard design for the shovel.

Q. It is your testimony now that you think that the horsepower of the air motor that operated the steam shovel was 25 horsepower?

A. Only a guess, I would estimate that.

Q. You are testifying?

A. I am telling you, I don't know.

Q. You don't know? A. No, I don't know.

Q. How many steam shovels did you have in the tunnel, power shovels?

A. We had two steam shovels operated by air, one in each tunnel.

Q. Did they both have the same kind of revamped engine from the Hetch [1436] Hetchy?

A. No, they did not come from the Hetch Hetchy, at all.

Q. Where did they come from?

A. I don't know exactly where they came from.

Q. Were they new equipment?

(Testimony of Thomas Moore Price.)

A. No, they were not. They were revamped equipment with the boom shortened and dipper stick shortened to fit the tunnel. They were secured before I came on the job. I forget who they got them from.

Q. Did they have the same sized air motor on them? A. Yes, I think so.

Q. What was that revamped from?

A. An air engine and a steam engine are identical. There was no change made.

Q. What did you mean by being revamped?

A. I was speaking of the boom and dipper stick.

Q. I thought you said the air motors were revamped. A. No, I did not mean to say that.

Q. They were steam shovels, and instead of putting steam into them you put air into them?

A. Yes.

Q. You think they were 25-horsepower motors?

A. Yes.

Q. Isn't it a fact that air motors could be purchased in the general trade, 50 horsepower air motors, that were subsequently used on the Pumperete?

A. No.

Q. It was not possible?

A. I tried to adapt them to it; the pumperete had to be moved from one tunnel into the other, had to be portable.

Q. You didn't know a way of doing it, that you could buy 50 horsepower air motors if you desired it?

(Testimony of Thomas Moore Price.)

A. I presume you could buy a steam engine which would serve the purpose. They were a very clumsy arrangement.

Q. And it would even have been possible, Mr. Price, if it was deemed necessary for you to work it out, to have put in a steam plant at [1437] the mouth of the tunnel and run a pipe line in and operated these plants with steam?

A. I would be inclined to answer no.

Q. You don't think it would?

A. I don't think it would because of the distance in the tunnel.

Q. Now, with respect to your concrete plant, you said that when you came on the job it was practically finished.

A. That portion of the plant with respect to the unloading of the material at the railroad and the mixing plant at the west portal, I presume that, I think that the whole concrete arrangement could be called a plant, a concrete plant. I do not think any individual item of it would be a concrete plant.

Q. You had the unloading bins at the railroad, you had the concrete mixing plant where you mixed your concrete near the west portal; that plant was not finished when you started in to concrete these rings at the west portal in October, was it?

A. No.

Q. It could easily have been finished if you had cared to do so in advance of that time, because it was practically finished when you came down on September 20th?

(Testimony of Thomas Moore Price.)

A. Yes, but I do not admit it could be easily finished.

Q. How long would it take, in your opinion, to finish the concrete plant, including these various units, after September 20th? You said it was practically finished, when you came on the job.

A. Well, if the Landvale track were not in there, it would have taken at least six weeks to get that portion of it ready. The plant, itself, was ready, but the servicing arrangement of the plant was not finished, at the upper portals,—I am not quite clear on the state in which the mixers were. I am inclined to think one of the mixers—none of the machinery for batching the concrete had been put in. I would say it would take at least six weeks to do that work.

Q. As a matter of fact, the mixers did not come on the job until [1438] sometime in November? They came up from the Boulder Dam?

A. Possibly so, I can't recall.

Q. About Thanksgiving Day they were there?

A. I don't recall.

Q. You remember that fact?

A. I don't remember, but it is entirely possible.

Q. Then the plant just stood there from that time until along about June of 1935, didn't it?

A. In the meantime we had completed it.

Q. What did you do to it from the time you came there in September until, say, the 1st of June, 1935?

(Testimony of Thomas Moore Price.)

A. Well, we completed the plant and tuned it up, got it so that it would run, got all the batching apparatus in, built a pipe line from the highway to the plant; when we tried it out we did not have enough water; we perfected a method of hauling cement from the unloading plant and made all of the thousand and one changes on the plant in order to get it to function properly.

Q. As a matter of fact, wasn't that done, all of that work done after June 20, 1935? A. No.

Q. Just before you started concreting?

A. No, I do not think so.

Q. You do not think so? A. No.

Q. Isn't it a fact that the first aggregate that you hauled from your Landvale connection to the concrete bunkers to make your first trial run was June 26, 1935?

A. I would say approximately about that date.

Q. So you could not test it until you had something in it to work on?

A. I did not mean we did test it.

Q. Isn't it a fact that the concrete engineer, Mr. Davis, checked the scales or had the scales checked and sealed on the 27th of June, 1935?

A. I don't recall.

Q. Isn't it a fact that the concrete plant was not ready for operation until the 1st of July, 1935?

A. I think that is approximately [1439] correct.

Q. What is that?

A. I think that is approximately correct.

(Testimony of Thomas Moore Price.)

Q. Over a year after you had started work on the project? A. Yes.

Q. After you started to run the plant it took you a couple of weeks to get it smoothed down, didn't it?

A. After we started to run the plant—you are referring to the plant, itself?

Q. The aggregates plant, up where you had your cement in one bunker and your sand in another bunker and your aggregate and your rock in another?

A. I don't recall that, it would be an expectable result.

Q. Mr. Price, you had, on the chute that led from your gravel bin down to your concrete mixer, you had to put vibrators on so that the material would run through them?

A. As I recall it we had some trouble with the chutes and I put on belt conveyors.

Q. But when you started on July 2, 1935, you had to put form vibrators in there so that the stuff would run down and mix?

A. That is the general practice in cement.

Q. How about the sand?

A. It might have been at that particular time—I don't recall. I know we usually use vibrators on chutes that carry cement.

Q. After you put your belt conveyor in you continued to use vibrators, didn't you?

(Testimony of Thomas Moore Price.)

A. I don't think there was any chute left after we put the conveyors in.

Q. You got rid of the chutes? A. Yes.

Q. And put in belt conveyors? A. Yes.

Q. And that was completed on July 17th?

A. I don't recall.

Q. So it was about the middle of July, 1935, something over fifteen months after commencing the work on the concrete plant before you had your concrete aggregates plant operating to put concrete into the tunnel? A. Yes, approximately.

Q. How long did it take after you started to set up the Boulder Dam [1440] concrete plant?

A. I think about 21 months.

Q. 21 months? A. Yes.

Q. How long do you think was a reasonable time to get your concrete plant ready on the Broadway tunnel?

A. The concrete plant could have been gotten ready shortly after the first of the year 1935.

Q. You think it would take six months to get the plant in shape as a reasonable time?

A. I don't understand your question.

Q. You say shortly after the 1st of January. The contract started in June. That would be about six months, would it not?

The Court: He wants to know if it would take that long to get the concrete plant ready.

A. Yes, I would say it would take six months.

Mr. Tinning: Q. Now, with reference to the Pumpcrete, I understood you to say it was not a

(Testimony of Thomas Moore Price.)

thoroughly tested equipment at the time it came on the job, and that you did not know very much about it, so you made an investigation.

A. I do not understand your question.

Q. Read it.

(Question read by the reporter.)

A. I do not agree with the last part of the statement.

Q. Which part, about the investigation?

A. That I did not know a great deal about it.

Q. You did know a good deal about it, didn't you? A. I knew something about it.

Q. I believe you said that you knew that it had been used for two years at Boulder Dam in the tunnel.

A. No, I said it had been used off and on on the remote sections of the work of Boulder Dam for approximately two years. My best recollection is it had been used in some of the small inclined shafts right from the power house. [1441]

Q. Is it your testimony now that it was not used in lining arches of the main Boulder Dam tunnel?

A. It was not. A Hackley gun was used.

Q. What was the size of the aggregates that you used in your Pumperete at Boulder Dam?

A. Up to the latter part of 1934 1½ inches.

Q. By the time that you were making your investigation of the Pumperete did you know that the Pumperete had been successfully using aggregates of 2½-inch size?

(Testimony of Thomas Moore Price.)

A. In the latter part of 1934, in December, yes.

Q. That was the size that you had used on the tunnel? A. On the Broadway Tunnel.

Q. Mr. Price, I show you a Pumpcrete circular issued by the Chain Belt Company, of Milwaukee, Wis., U. S. A., "Concrete by Pipeline," Copyrighted in 1934, and ask you if the picture of the Boulder Dam tunnels is a fair representation of those tunnels as you saw them?

A. Yes, but that is a picture of the raise from the diverting tunnel to the intake, to the spillway. I think that was done in the latter part of 1934.

Q. Is the Pumcrete shown in this photograph?

A. Yes.

Q. What size aggregates at that time were worked?

A. Approximately 3-inch, pass a 3-inch screen.

Q. Considerably larger than what was required at the Broadway tunnel?

A. The Broadway tunnel required aggregate passing a 3-inch screen.

Q. I will ask you to look at page 2 of this catalog and the photographic reproduction appearing at the left of the page entitled "Forms and pipe set at downstream end of 37-foot tunnel being fed by dual Pumpcrete above."

A. Yes, that is the upper penstock tunnel.

Q. Is that a small tunnel?

A. Yes, it was approximately 40 feet, as I recall,

(Testimony of Thomas Moore Price.)

outside diameter, compared with the 60-foot for the diversion tunnel. [1442]

The Court: Let me see that.

Mr. Tinning: Q. So that the tunnel that you have called a small tunnel at Boulder Dam, 37 feet, was just about the same size as our tunnel, was it not?

Mr. Marrin: I wonder if we might have that marked for identification?

Mr. Tinning: I was going to introduce it.

The Court: It may be admitted. That is what you want.

(The catalog is marked "Defendant's Exhibit F-4.")

Mr. Tinning: Q. The tunnel that I have just been discussing with you, Mr. Price, is a tunnel 37 feet in diameter? A. Yes.

Q. You call that a small penstock tunnel?

A. No.

Q. What tunnel do you call it?

A. The upper penstock tunnel.

Q. You call it 37 feet, don't you? A. Yes.

The Court: This one?

Mr. Tinning: Yes.

Q. I am asking you if this tunnel that you just referred to of 37 feet was not about the same size as our tunnel, the Broadway Tunnel?

A. Yes, approximately.

(Testimony of Thomas Moore Price.)

Q. You used Pumpcrete in 1934 at Boulder Dam on a 37-foot tunnel and that was successful?

A. In the latter part, very late in 1934.

Q. You were a member of the Six Companies, and that information was available to you?

A. Yes, and that is how I know about it, because it was only in the latter part of 1934 that the Pumpcrete—that the Chain Belt Company had been able to perfect their valve arrangement so that it could handle 2½-inch aggregates, and that is why I was considering it for the Broadway Tunnel. The pump up to that time had not been successful on the 2½-inch aggregates. The tunnel I was speaking of was a tunnel that we used Pumpcrete on that would handle 1½-inch aggregates, up to that time, up to the very late [1443] part of 1934.

Q. Right here on San Francisco Bay one of Mr. Kaiser's companies was using the Pumpcrete pumping concrete and 2½-inch aggregates into the foundations of the San Francisco Bay Bridge in the fall of 1934, was it not?

A. No, it was not Mr. Kaiser's company. And how I knew about the operations, I spent many nights on it. I was out there approximately 30 or 40.

Q. That was an independent contractor?

A. That was an independent contractor. It was being built by the Chain Belt Company, and my personal friend, C. F. Ball, was out here with the Pumpcrete from the Chain Belt Company, and it was not a success.

(Testimony of Thomas Moore Price.)

Q. It was not a success?

A. It was not a success.

Q. But that is the way it was built?

A. That is the way it was built after wasting a lot of concrete trying to get the thing running, because it would stop up about every twenty minutes.

Q. That was in 1934?

A. In the early part of 1934, as I recall.

Q. I was directing attention to the use of the pumpcrete on the Bay Bridge in the latter part of 1934. Were you on the bridge span with your friend from the Chain Belt Company until you got this plant working well? A. Yes.

The Court: We will take an adjournment now until tomorrow morning at ten o'clock.

(An adjournment was here taken until tomorrow, Wednesday, May 4, 1938, at ten o'clock a.m.)

[1444]

Wednesday, May 4, 1938
10:00 o'Clock A. M.

THOMAS MOORE PRICE

Cross Examination (continued)

Mr. Tinning: Q. Mr. Price, yesterday, when we were engaged in this examination, I understood you to say that you thought a reasonable time to complete construction of the concrete plant, which

(Testimony of Thomas Moore Price.)

includes the different units that you referred to. would be about six months; and I notice the record, on page 1033, says "16 months." I understood your answer correctly, did I not?

A. No; I thought you were referring to the mixing plant.

The Court: In any event, his testimony was six months?

Mr. Tinning: Yes.

The Court: The record is in error. Wasn't that true?

Mr. Tinning: May it be stipulated that Mr. Price's reply to the Court's question on page 1033 of the transcript should have stated "six months" instead of "sixteen months," as the record shows?

Mr. Marrin: Yes; that is what Mr. Price stated.

The Court: If there is any question about it, you can clear it up on examination by either side.

Mr. Tinning: Q. There is not any question about it, is there, Mr. Price, that is what you said?

A. That is what I said, but I was referring particularly to the plant outside the tunnel, — the mixing plant.

Q. That is what I was referring to.

A. Yes.

Q. All the Landvale plant and whatever went into the mixing plant? A. Yes.

Q. And six months was a reasonable time, in your opinion, for that construction?

A. I believe so.

(Testimony of Thomas Moore Price.)

Q. Defendant's Exhibit "N," the schedule of August 9, 1934, shows that it was planned to complete all of this plant by August 31, 1934. [1445] Was Mr. Fontaine's judgment in that respect erroneous, in your opinion?

A. Well, I imagine the facts speak for themselves. I don't know exactly what his judgment was. It was not completed by that time.

Mr. Tinning: May we have Defendant's Exhibit "N," please, Mr. Clerk?

Q. "Company Work Tunnel Proper Plant and Equipment Installation,"—that line shows it was to be completed on August 31, 1934, does it not?

A. Yes.

Q. Do you consider, in your opinion, that Mr. Fontaine was wrong in contemplating the construction of that plant in six weeks, as the exhibit shows?

A. I am unable to say.

Q. Could it have been constructed in six weeks?

A. In six months?

Q. Six weeks.

A. Well, I don't know what extent that particular item went to; but I don't believe all the plant, as finally installed—that there may be installed in six weeks— For instance, it is very difficult, at the beginning of a job, to know the extent of what it will consist of. For instance, a lot of the plant on the Broadway job was not completed for a considerable time after 1935; and, as I recall, things are improved and changed all the time as the job progresses.

(Testimony of Thomas Moore Price.)

Q. The point I am referring to is what your progress schedule,—Six Companies' progress schedule,—that was filed with the District on August 9, 1934 showed, with respect to the "Company Work Tunnel Proper," the first item is "Preparatory Study." Those were to be concluded by the 31st of July. "Plant and Equipment Installation" was to be started somewhere around the 12th of July, and to be completed on August 31, 1934?

A. That is correct, as the diagram says; but the only point I make is: I don't know to what extent that item consists.

Q. Well, Mr. Price, if you just look at the subjects shown under [1446] that heading of "Company Work Tunnel Proper," it includes the construction of the tunnel, does it not?

A. Apparently so.

Q. Mr. Price, you testified here on April 28th, on direct examination, according to the record—and I am now reading from page 846—

A. I am sorry; I did not understand that question due to the confusion in the room.

Q. I can read from here, and that will make it a little easier for you. You understood what I was asking?

A. No; I did not. Someone coughed and I missed the question.

Q. On April 28th, you testified, in response to Mr. Marrin's question, as follows—and I am reading, gentlemen from page 846:

(Testimony of Thomas Moore Price.)

"Q. What was your position with Six Companies of California?

"A. I was called project manager.

"Q. What were the duties of that position?

"A. The duties of the position were to handle the business end of the job.

"Q. How long did you remain in that position?

"A. Why, I am still in it, so far as I know. I stayed with the job until we rescinded the job in June, 1936. Since that date, I was occupied for the first year in looking after Six Companies of California equipment and tools and other interests on the job, and since that time I have been largely engaged in making preparation for this litigation."

Q. Is that what you testified at that time?

A. Yes, to the best of my recollection.

Q. As a matter of fact, Mr. Price, isn't it true that you last worked and went off the payroll of Six Companies of California on the 31st day of December, 1935?

A. No, sir; I have never been off since I started.

Q. By "this job," I am referring to the Broadway Tunnel job. I don't know what you may have done for Six Companies somewhere else.

A. No. [1447]

Q. Isn't it a fact the certified transcripts of payrolls filed by Six Companies of California with the

(Testimony of Thomas Moore Price.)

Joint Highway District show that you were carried on the payroll as project manager to December 31, 1935, and that thereafter you do not again appear on any payroll that was filed with the District at that time or at any time?

A. I am unable to say.

Q. You don't know?

A. I don't know exactly—

Q. As project manager, didn't you have to certify these payrolls that were filed?

A. No; I don't recall that I did.

Q. Who did?

A. I think, the auditor,—Mr. Sloane.

Q. Why were you left off after December 31, 1935?

A. I cannot tell you. I still got my pay.

Q. Or was it charged to something other than Joint Highway District No. 13,—that Broadway Tunnel job?

A. I don't know that it was. I am unable to tell you, at the moment.

Q. Well, we will come back to that. Mr. Price, do you recollect the conversation on or about the 20th of June, 1935 that occurred near the east portal of the tunnel, in which Mr. S. D. Bechtel and yourself were present representing Six Companies, and Resident Engineer Gelston and District Engineer Boggs were also present?

A. No; I do not recall it.

(Testimony of Thomas Moore Price.)

Q. What is it that you do not recall,—the incident of a conversation or the date?

A. I don't recall—I have been trying to refresh my mind since I heard you ask Mr. Bechtel about that meeting, but I just simply don't recall it.

Q. Well, it is a fact, is it not, that at a conference at which you were present in June of 1935, after you knew there was some intrusion of timber,—the timbers were moving,—you were present when Mr. Bechtel asked Mr. Boggs for permission to permit the timbers to intrude into the neat concrete section?

A. Yes; I know [1448] Mr. Bechtel asked Mr. Boggs that, on several occasions; but I am unable to place any definite conference.

Q. Well, it was prior to your starting the concreting, was it not?

A. Possibly so; I don't recall.

Q. Well, Mr. Price, at the time these conversations with respect to permitting the timbers to intrude into the specified section of the concrete lining, you had not started concreting, had you?

A. I am unable to tell you, Mr. Tinning. We started concreting on July 19th, as I recall—on or about that date; that is the arch lining.

Q. You knew, some time in May the timbers were moving into the required section?

A. Yes, the latter part of May, 1935.

Q. So that you would not say that such a conversation in which Mr. Bechtel requested permis-

(Testimony of Thomas Moore Price.)

sion to permit the timbers to intrude into the neat concrete section did not occur in June of 1935 and the persons I have stated were present?

A. I am unable to state the time.

Q. You have no memory on it?

A. I explained that I have no memory of the exact time. I remember Mr. Bechtel speaking of it to Mr. Boggs.

Q. When you installed the concrete in the west portal rings, you knew, after the forms were stripped, that the concrete that was placed there was not satisfactory?

A. Well, it was not satisfactory, to the extent that there were cold joints, apparently, in the concrete; and I think cold joints are not good concrete.

Q. You also had voids, did you not, places where the concrete was not of uniform texture; there had been segregation?

A. Yes; but I did not regard that so seriously, because that is quite a common condition in most tunnels,—voids in the concrete; and it is easily repaired. It is not a serious condition, in my opinion.

Q. Well, it costs considerable time and money to have to put in [1449] pneumatic guns, and drill and chip out that type of bad concrete, does it not?

A. It depends upon the extent of it.

The Court: We will take a short recess.

(Recess) [1450]

(Testimony of Thomas Moore Price.)

(After recess):

Mr. Tinning: Q. Mr. Price, you stated that there were some cold joints in the Hackley concrete. I would like to show you two photographs taken in the down-grade tunnel which show what I believe to be cold joints. Will you look at the one which you are holding on top, which is a view of crown area down-grade tunnel April 8, 1936, Station 111+90, and I will ask you if that is a fair representation of the cold joints that you refer to?

A. Yes, I think that is a fair representation—no. I think that is a construction joint, Mr. Tinning. The cold joint that I had reference to that I particularly noticed with Mr. Boggs and Professor Davis was down near the floor of the tunnel rather than the arch. I believe that is the down-grade tunnel, isn't it?

Q. Yes.

A. I think that is a construction joint. I would not be positive, but apparently it is.

Q. The down-grade tunnel was poured when you had two Hackley guns?

A. We poured from the rear end of the tunnel to the front end in raises.

Q. Or lifts? A. Yes.

Q. Did you pour that with a Hackley gun throughout? A. Yes.

Q. So that the concrete that is shown on the bottom of the picture below this point is a Hackley gun concrete?

(Testimony of Thomas Moore Price.)

A. This is all Hackley gun concrete.

Q. And the top is also Hackley? A. Yes.

Q. And the top is the arch, is it not?

A. It appears to be so from the photograph.

Q. In the part of the tunnel which was poured by the drawing out of the pipe that led the concrete from the Hackley gun into the forms and as you drew out the pipe the concrete was discharged toward the interior of the tunnel, attempting to concrete the top of the [1451] arch by that method?

A. Yes, apparently so. I think it should be explained for the record that this picture represents the concrete after it had been dug out with pneumatic equipment and not as it was left.

Q. I am coming to that. The area above the line that you say is a construction joint and which appears to be broken or rough concrete shows the reinforcing steel and shows the marks of tools, does it not? A. Apparently it does.

Q. That was concrete that was cut out in 1936 because it was defective, it was soft or porous?

A. I did not see the concrete at the time it was cut out. I understand that the Bureau of Public Roads raised some objection to it, and that they desired it to be repaired. I did not see it. I did not notice it when it was taken out, that it was very bad. I did not see any rock pockets. I did not see it after it had been cut out. I saw it after it had been repaired with gunnite.

(Testimony of Thomas Moore Price.)

Q. You know it was cut out and repaired by Six Companies?

A. That is my understanding, a portion of it, approximately 8 yards, or an infinitesimal part of it.

Q. Infinitesimal?

A. A small percentage.

Q. If the arch was weak at that point the tunnel might fall down, it didn't have to be 8 square yards to be defective?

A. Cubic yards.

Q. Or square yards. You were in heavy ground at this portal, were you not, you had pressures there so that it required stulling against the core when you poured the concrete? A. Yes.

Q. It was a place where the integrity of the arch was required, if at any place in the tunnel it was required? A. Yes.

Q. That was the reason the concrete was repaired, to give you a full arch there?

A. That is my understanding.

Mr. Tinning: We offer these two photographs in evidence [1452] of the down-grade tunnel station 111+90 as Defendant's Exhibit in proper order.

The Court: They may be admitted and marked.

Mr. Tinning: We will ask that they be marked 1 and 2, but be all one exhibit.

[Set forth in the Book of Exhibits at page 464.]

(The photographs were marked Defendant's Exhibit G-4.)

(Testimony of Thomas Moore Price.)

Q. Mr. Price, I show you a photograph marked "View of left crown up-grade tunnel, station 112+05, May 30, 1936," and ask you if that appears to be a picture of the roof or crown, in other words looking up at the arch of the tunnel?

A. Yes, it appears to be.

Q. From your knowledge of the stations of the tunnel would you say that that was in the ring that was poured with the Hackley gun in the up-grade tunnel?

A. Yet, it apparently is; as you say, it was Station 112+05, and that was poured at the time.

Q. Doesn't the photograph show two marks in the same manner that the preceding photograph shown you indicates that the concrete had been chipped out? A. Yes.

Q. And that was done to take care of what condition?

A. In the same manner as in the south tunnel, the engineer ordered that this concrete be chipped and repaired with fresh concrete.

Q. That was concrete placed by the Hackley gun under the difficulties and method that both Mr. Larson and you have described? A. Yes.

Mr. Tinning: We offer this photograph in evidence as Defendant's Exhibit in proper order.

The Court: It may be admitted and marked.

(Testimony of Thomas Moore Price.)

(The photograph was marked "Defendant's Exhibit H-4.")

[Set forth in the Book of Exhibits at page 466.]

Mr. Tinning: Q. You have already testified that the original method planned for concreting this tunnel was the Hackley gun, and you demonstrated to your own satisfaction, in attempting to get the concrete into the first ring, that first 100 feet of the west [1453] portal that the method was not satisfactory for use in these tunnels?

A. Yes, under the interpretation of the specifications by the engineer.

Q. I believe you also said it was general practice to shoot concrete into the top of the form and let it fall down over the sides of the form toward the bottom. Do you remember that testimony, Mr. Price?

A. Yes. I think I qualified that by in my experience it was general practice as far as I knew.

Q. In your experience? A. Yes.

Q. You never had poured concrete in a tunnel before, had you, Mr. Price?

A. I had seen concrete poured in the tunnels at Boulder Dam.

Q. Would you mind answering the question, had you ever poured concrete in any tunnel before, yourself? A. No, I had not.

Q. And in Boulder Dam is the place that you had seen concrete poured in a tunnel?

(Testimony of Thomas Moore Price.)

A. Yes, and also in the Metropolitan Aqueduct in Southern California.

Q. The Metropolitan was a small tunnel?

A. Yes.

Q. 15 feet?

A. Variable, but I think it was somewhat larger.

Q. About the size of the Claremont Tunnel or a little bit larger?

A. I was never in the Claremont Tunnel, but I believe it was approximately the same.

Q. It was an aqueduct, a water project?

A. Yes.

Q. Isn't it true, Mr. Price, that by dropping the concrete over the sides of the forms, unless you have an apparatus to continue your discharge so that you rapidly fill the form, when you get your coat of concrete on the inside the upper part of the form will build up like plaster or concrete, and that you do not get a smooth form when you come up and build up the point where this concrete has stuck onto the form as it dropped back?

A. I would say that would [1454] depend on the time element.

Q. That is what I am asking you about. You have a concrete gun and you are pouring a lift into the form and you can only put in enough concrete to pour six feet of lift and then have to stop for half an hour or an hour while you get more concrete ready to put in there, and in the meantime the concrete that was spattered on the

(Testimony of Thomas Moore Price.)

side of the form will drop down and go into place and it will harden, and you have a rough interior to your form, where the concrete is stuck?

A. You should not stop pouring; under the plan I think you should pour on you should not stop for half an hour or an hour, and, furthermore, if the concrete stuck to the form on top, if it was good concrete, I do not see any objection to its sticking there, because the form would shape the concrete on the inside of the form and not the concrete, itself.

Q. You would have, in effect, a cold joint?

A. Yes, if it stopped too long you would have.

Q. Isn't that about what you did in these pictures that required you to chip that stuff out?

A. From the cut of these, I am rather inclined to think they were rock pockets than cold joints.

Q. By a rock pocket you mean a place where the material had segregated?

A. Yes, where there was not enough mixture in the concrete to complete the fill.

Q. It is a fact that you had to shut down in your operations in placing concrete in the Broadway Tunnel far in excess of half an hour?

A. Oh, yes, it was a very unsatisfactory operation.

Q. You had to get in your forms and clean them off where the concrete had stuck and hard-

(Testimony of Thomas Moore Price.)

ened while you were getting more concrete to put into the forms?

A. Well, we had to get in there and clean off the forms on the inspector's orders, regardless of whether we were waiting for concrete or any other reason. [1455]

Q. But you had to get in there, if there was concrete sticking in the forms, you had to get in and clean them off? A. Oh, yes.

Q. You also had to clean off the reinforcing steel? A. Yes.

Q. That was due to the fact that the concrete was shot in there under very high pressure, was it not?

A. Yes, but I think it is the normal pressure for that type of placing.

Q. You had a wooden baffle box, did you not, a kind of a long box in there that concrete went in and distributed through gates into various parts of the form? A. Yes, we tried that.

Q. It did not work very well?

A. Not very well.

Q. It blew to pieces from the force of the concrete that was shot in there?

A. Yes, it would blow to pieces and stop up with the rock and block the pipe line. It was almost impossible to divert that concrete any way except from a straight line.

Q. Did you know that in the pouring of the

(Testimony of Thomas Moore Price.)

Sunset Tunnel in San Francisco that a Hackley gun was used? A. Yes.

Q. And used satisfactorily?

A. It is my understanding that it was.

Q. Now, in that tunnel when you were trying to solve this problem at the west portal with your Hackley gun, did you know that they had poured the Sunset Tunnel by gravity about four feet in height on each side of the tunnel?

A. I don't know the height, but I understood that they had.

Q. And then moved in a collapsible steel form, in which there was 120 feet used, and that in this steel form, when it was placed in the proper location in that tunnel a steel baffle box was placed into which the discharge pipe from the Hackley gun discharged the concrete? Did you know that?

A. I found it out shortly after that.

Q. You did not use a steel baffle box in the Broadway Tunnel? [1456].

A. Yes, we started with it.

Q. Did you use the steel baffle box while you were trying to pour these two rings at the west portal?

A. Yes, particularly in the south tunnel, the first tunnel we poured.

Q. What do you mean? You just told us a few moments ago you used a wooden baffle box.

A. We tried wood and steel. both.

(Testimony of Thomas Moore Price.)

Q. What was your steel baffle box, the dimensions, the size? A. I don't recall.

Q. You don't recall? A. No, not exactly.

Q. You were in charge of the work. How long was the steel baffle box.

A. I don't recall. I would estimate around 3 or 4 feet.

Q. That would be a kind of a nozzle, would it?

A. No, I would not so regard it. I understand a baffle box to be a box to absorb the force of the flow of the concrete as much as possible from the end of the pipe.

Q. How long was your wooden baffle box?

A. I do not recall.

Q. Was it 6 feet, or 10 feet, or 15 feet, or 20 feet, or how long was it? A. I do not recall.

Q. You have no recollection?

A. No, I don't remember the wooden box particularly, at all. I was thinking of the steel box. We might have tried a wooden box lined with steel, I do not recall.

Q. How long was the steel baffle box that was used in the Sunset Tunnel?

A. I don't know exactly.

Q. What do you estimate it was?

A. I would estimate it as 3, or 4 or 5 feet.

Q. 3 or 4 feet.

A. Somewhere in there. I never saw it. I am just trying to give you my understanding.

Q. Your understanding from the information you have?

(Testimony of Thomas Moore Price.)

A. That I gathered from various sources since that time, shortly after the pouring.

Q. You did not control this work, yourself, did you? A. In the [1457] tunnel?

Q. The concreting that you have mentioned?

A. No, I did not.

Q. Mr. Larson was doing that?

A. Yes, I conferred with him daily about it, trying to help to get the thing along.

Q. But you had had no experience in that specific kind af an operation? A. No, I had not.

Q. This baffle box that was used in the Sunset Tunnel was used throughout the tunnel in placing the Hackley concrete, was it not?

A. That is my understanding.

Q. Wherein did the baffle box that you tried to use in the Broadway Tunnel differ from the baffle box that was used in the Sunset Tunnel?

A. I don't think it was a question of baffle box. As a matter of fact, to my understanding there were several reasons why the concrete in the Sunset Tunnel could be successfully poured, where it could not be successfully poured by that method in the Broadway Tunnel. Now, those reasons particularly are as follows: In the first place, the aggregate in the Sunset Tunnel was 1¼-inch aggregate, a very small aggregate, gravel; the aggregate in the Broadway Tunnel was almost 3-inch aggregate, particularly 2½ inches in size, that is the maximum

(Testimony of Thomas Moore Price.)

size through a 3-inch screen; it makes a tremendous difference in handling aggregate from a pneumatic gun with 3-inch aggregates and with 1¼-inch aggregates; you can control it much better. In the second place, according to the plans which were made on the job, the concrete in the Sunset Tunnel was permitted to fall approximately 18 feet in the open, and in the Broadway Tunnel we could not let it fall over 6 feet, which meant that concrete had to be led from the top of the baffle box down almost to the bottom; in the third place, they permitted the use of flowing sand in the concrete, 40 per cent, of the sand was a very fine flowing sand picked up at the banks near Golden Gate Park, where these [1458] sand dunes are, and which makes the concrete very plastic. In the concrete section on the Broadway Tunnel we had to use a very small grained sand, which made very good concrete if it could be handled, but nevertheless it was not plastic like the concrete on this Sunset Tunnel. For those reasons it made a totally different job handling it with the Hackley gun.

Q. You knew all about that, you have told us, at the time you were doing the work?

A. No, I found out later.

Q. In other words, it is your explanation now that due to the different qualities in the concrete on the Sunset Tunnel that the problem was different from that on the Broadway Tunnel?

A. I think it was totally different.

(Testimony of Thomas Moore Price.)

Q. And you also considered another element was different, and that is on the Sunset Tunnel the contractor was permitted to drop the concrete a distance of 18 feet? A. Yes.

Q. Isn't it a fact that in the Sunset Tunnel there was a long baffle box which extended the length of the form, whatever form they were pouring, that it had chutes in it, open chutes 6 feet in length, extending out from the baffle box, and that there were gates in the baffle box which were closed to permit the concrete to run in one of these chutes, so that it would be carried over the top of the arch by the chute and not spatter against the top of the arch and causing this flow of raised material to drop down whatever distance was necessary up to 18 feet, or whatever it might have been?

A. I do not recall the exact dimensions of the baffle box. I think probably I have a drawing somewhere if I could locate it and get it as a matter of record.

Q. Your study of the Sunset Tunnel is something that you have made since you have been in this controversey and you did not have that study in mind when you were attempting the pouring?

A. No, I went [1459] into it first shortly after our ill success with the Broadway job, because I was informed that they had used it satisfactorily over there, and I refreshed my mind in the last three months on it again.

(Testimony of Thomas Moore Price.)

Q. Now, do you know that the specifications for the Figueroa Tunnel in Los Angeles provided for horizontal layers of concrete, nearly horizontal layers of concrete?

A. No, I have never seen those specifications.

Q. When you were doing the pouring on this tunnel, after you came there on September 20, you did not have in mind the experience and methods that were used in the Figueroa Tunnel?

A. I did not, because I did not know about it. The concrete placing system was largely planned when I arrived on the job in September, 1934.

Q. But you were going to change the concrete placing system when you arrived on the job; you had a Hackley gun system and then you were going to change when you found it did not work, and I am now directing your attention to other places where the Hackley gun had been used on tunnels of comparative size, and I am asking if you knew about the Figueroa Tunnel.

A. No, I didn't know the conditions down there, the requirements or the conditions.

Q. You didn't know in that tunnel the sides were poured from a gravity car and that the top was poured by pneumatic gun method?

A. No, I didn't know anything about the job.

Q. Or that in that tunnel all the lining was placed before the core was taken out?

A. I did not know that.

(Testimony of Thomas Moore Price.)

Q. And later on the walls of the tunnel on the north end of the Golden Gate Bridge were built?

A. Yes.

Q. The core was left in and lining put in and then the core taken out? A. Yes.

Q. Did you know of the Sepulveda Tunnel that was built in 1929 and 1930, where the Hackley gun was used and horizontal layers of con- [1460] crete were laid with lifts coming up in the forms and that a removable pipe with sections was used for placing concrete in that manner in the forms?

A. I don't know of the tunnel. I know to the best of my knowledge a Hackley gun, or some form of pneumatic gun was practically the only system that was available up to the latter part of 1934.

Q. And it worked in those tunnels?

A. I presume it did.

Q. They were built that way. Now, in this tunnel while you were working out a method of placing your concrete you had gone in a distance of approximately 1000 feet in each tunnel before you started concreting?

A. I think it was about 800 feet.

Q. Something like that. And you shut that work down on August 21, 1935, due to the fact that you had a large amount of timber that had to be taken up and taken care of before you could continue the driving of the tunnel?

A. Yes, I think that is correct.

(Testimony of Thomas Moore Price.)

Q. If you had placed your concrete in that tunnel prior to removing the timbers you would not have had to shut down on August 21, would you?

A. I do not think so.

Q. And any delay that resulted from that shutdown or from the repairing of timbers was due to the fact that you had not concreted the tunnel as the excavation progressed?

A. Yes, of course you understand with extenuating circumstances in connection with it; if you could not concrete you could not concrete.

Q. They had concreted the other tunnels?

A. If the ground lining was strong enough to hold it, if it had been, I presume it would not have come in.

Q. It has not fallen down since the concrete lining was put in?

A. I do not think so, I have not checked.

Q. You think you would have heard about it if the Western Construction Company——

A. Yes, I would have heard if there had been any alarming movement. [1461]

Q. You stated that, under the concrete specifications, there was some confusion in your mind as to the method you could use in concreting this tunnel; is that correct?

A. No; I don't remember the word "confusing." I gave my interpretation of what I thought the Contractor could do under the specifications — under my interpretation of the specifications.

(Testimony of Thomas Moore Price.)

Q. Your interpretation of the specifications was — you had a longitudinal view of the tunnel, and you showed the concrete lining, the running down at about a 45 degree line?

A. Yes; that was a sketch of whatever slope the concrete was run on.

Q. Well, it was a demonstration that you thought it could be placed in lines like that? A. Yes.

Q. That would have permitted you to shoot into a solid mass of concrete, or permitted the Hackley gun to discharge against the end of the form and build up, and then you would gradually pull the discharge pipe back, always keeping the end of the discharge pipe in concrete?

A. Your men could stand back of that safely and be vibrating the concrete, which would place it on a slope or slide.

Q. So you could get sloping concrete, sliding concrete or sliding contact lines in that concrete, at whatever slope —

A. Well, that depends on the speed. I don't think you could get contact lines if you poured it continuously and fast enough.

Q. You did not have a plant when you poured these rings on the mouth to permit you to do that?

A. No. The District Inspector, — Mr. P. K. Davis, — told me they would not permit that.

Q. Prior to your pouring? A. Yes.

Q. Did you make any written protest in regard to that? A. No.

(Testimony of Thomas Moore Price.)

Q. Did you read the rest of the specifications after Mr. Davis told you you could not pour that?

A. I read them prior to that.

Q. What is a lift of concrete?

A. I would say a lift of concrete [1462] in my opinion, is a raise in which — It is while you are working; a work interval.

Q. Yes. Where you cease working to put in another form or for some other reason, you make a joint? A. For some reason.

Q. In building a dam, a lift is what you build in one set of forms, isn't it?

A. Yes, I think it could possibly be interpreted that way.

Q. So, when you were interpreting the matter that you read on page 25 of the specifications the other day, as being a section that permitted you to put in layers of concrete and then measured vertically, you did not construe a lift in the manner in which you have just construed it?

A. Yes, I think it is practically the same thing. It is a work interval. You pour concrete on one side to the height you want, and then you go to the other side and pour.

Q. Well, Mr. Price, a lift is something where you get a cold joint, as I understand it, and you said you were going to pour continuously in this form—

A. No; I don't think a lift applies necessarily to a cold joint. I think it would apply to work interval.

(Testimony of Thomas Moore Price.)

Q. What does a layer mean?

A. I would say a lift and a layer is practically synonymous.

Q. The same thing. You think, if you were placing the concrete in a dam, a lift, say, of 10 feet, a set of forms, that the layer which you put in at one form would mean the same thing as a lift?

A. No. I am inclined to think it wouldn't be the same thing. I think a layer probably would be the portion of the lift itself.

Q. The portion of a lift?

A. If you used it that way in a dam, that would be my opinion of it.

Q. Wouldn't it be just the same in concrete forms in a tunnel?

A. Yes, it would be the same thing, except my understanding of the specifications was the lift meant a change from one side, and then you go to the other side and make another lift of 6 feet. Those lifts [1463] would naturally have possibly many layers of the concrete running down the side of the form.

Q. So, if you used your method that you described there, those things you show as the concrete went down were layers, were they not?

A. I think my interpretation of it was you could make a 6 foot raise on one side, and that side would be composed of many layers; and the concrete ran down the side of the form.

Q. And if you had one of these inclined lifts of

(Testimony of Thomas Moore Price.)

6 feet, then you would have, — if you had one of these inclined lifts of 6 feet, then you would have — if you had to stop, you would have a cold joint running down at the angle, or whatever angle the concrete was?

A. Depending on the time it took to get back——

Q. That is what I say; if you were delayed?

A. Long, yes.

Q. You were delayed a good many times, were you not?

A. Yes; we had a lot of delays on pouring the portal concrete.

Q. Now, if you will look at the specifications, Plaintiff's Exhibit No. 3 — look at page 25, Mr. Price. I will call to your attention, first, the section that we read the other day — page 25, the lefthand column:

> "Concrete for the tunnel lining shall be placed continuously between any two adjacent construction joints, in lifts not more than 6 feet deep, measured in a vertical direction. The topmost lift, having a width not to exceed 8 feet, shall not be placed until the adjoining concrete on both sides has been in place for at least seven days, unless otherwise directed by the District Engineer."

You knew of that in the specifications when you started to pour this concrete, didn't you?

A. Yes; we had asked the Engineer about this.

Q. You had been told that you could not pour,

(Testimony of Thomas Moore Price.)

in the inclined lifts or inclined planes that you indicated on your diagram? A. Yes.

Q. You made no protest?

A. Made no protest. [1464]

Q. As I understand it, you stated the other day that you thought that was the controlling matter in placing concrete?

A. No; I did not. I did not intend to make such a statement — such a positive statement as that.

Q. When you were making your plans for this concreting, did you have in mind the provision of Paragraph 12, the provision of Section 15, appearing on page 25, which is headed, "Conveying, Placing and Compacting Concrete"? Did you have those provisions of the specifications in mind?

A. Why, I had them in mind, because we were discussing it almost constantly both with the inspectors and among ourselves.

Q. Now, you will start there with the first sentence which says:

"Concrete, when mixed, shall be immediately conveyed to the forms and deposited without separation of its ingredients."

That meant you could not drop it 18 feet.

A. It does not say anything about 18 feet.

Q. But if you dropped concrete 18 feet, you would likely get separation, wouldn't you?

A. I think you probably would.

Q. "The use of open chutes to convey and deposit concrete will not be permitted, except

(Testimony of Thomas Moore Price.)

for distances of less than 20 feet, and then only by special permission of the District Engineer. When open chutes are used, they must be of such cross section and laid at such inclination that they will permit the flow of concrete of the consistencies herein specified, without the use of additional water to promote free flow."

Now, coming back to the first sentence about the ingredients —

"Only methods of transporting and placing which will deliver concrete of specified consistency without separation of its ingredients will be permitted."

You knew about that, too, didn't you?

A. I knew that was in the specifications.

Q. And that was something that was put in there to give you concrete [1465] on the job and that would prevent rock holes and other things that weaken the concrete if these provisions were not in there? A. Yes, I think so.

Q. Now, we refer to the next portion of this paragraph 12 that appears here:

"Concrete shall not be permitted to fall from a height greater than 6 feet except through an enclosing pipe, in which case the height of fall shall not exceed 12 feet. An enclosing pipe may be required by the District

(Testimony of Thomas Moore Price.)

Engineer for placing concrete in column, walls and deep footings."

The first sentence gave you a right to drop concrete 6 feet, which is, I think, reasonable, isn't it? It will not be likely to segregate in a fall of that distant? A. Yes.

Q. And it also permits the dropping through an enclosed pipe up to 12 feet, — a distance of 12 feet; and that was designed to prevent segregation, was it not?

A. I assume so. I don't think it would hurt to drop it further than that in an enclosed pipe.

Q. But the District Engineer's judgment was different? A. Apparently so.

Q. That was what was bid on; that was the way you bid on the work, wasn't it? A. Yes.

Q. That was the reason for the design of the pipes that accompanied your steel form designs that were presented to the District? A. Yes.

Q. That was the reason you were submitting those, — to be sure they would be acceptable?

A. I was trying to do everything I could to comply with his wishes.

Q. And with the specifications?

A. Well, more particularly with his wishes.

Q. You were able to interpret the specifications?

A. Apparently, I had not been able to up to that time. I interpreted the [1466] specifications on tunnel lining concrete in the way I described the other

(Testimony of Thomas Moore Price.)

day, and the only place it says anything about concrete for tunnel lining — You are reading the specifications that apply to concrete structures outside of the tunnels.

Q. You say it was your interpretation of these specifications that that was a matter appearing in the left-hand column on page 25 about placing tunnel concrete?

A. Well, it particularly describes the tunnel lining.

Q. You say there is nothing in the other column that deals with it?

A. It does not refer to tunnel lining at all. It says "concrete."

Q. Well, we will proceed to consider the next paragraph; in paragraph 12, on the right-hand column of Section 15:

> "Concrete shall be uniformly distributed during the progress of depositing and in no case after deposition shall any portion be displaced in the forms more than 3 feet in a horizontal direction. Care must be taken not to displace the reinforcement, pipes, anchor bolts or other devices which are to be embedded in the concrete."

Mr. Price, as you worked this out in your steel form, you had some kind of an elephant trunk that you swung back and forth so you were able to comply with this paragraph?

(Testimony of Thomas Moore Price.)

A. Yes, we had an elephant trunk that we could swing back and forth.

Q. The next paragraph:

"Concrete shall be deposited in uniform horizontal layers, not deeper than 12 inches, care being taken to avoid inclined planes or inclined construction joints."

Now, those inclined planes that you show in your diagram would not comply with this provision of the specifications, would they?

A. No; it would not, unless the concrete were poured so fast the inclined plane would be obliterated in the pouring.

Q. And possibility of human error needs to be considered in pouring a permanent structure?

A. Yes. [1467]

Q. "Construction joints must be built with square ends and level tops, except as otherwise directed by the District Engineer; in arch type structures, joints shall be made at right angles to the axis of the rib. Each layer shall either be placed before the previous layer shall have taken its initital set, or, if the previous layer has taken its initial set, the surface of the previous layer shall be prepared as herein specified for the preparation of hardened surfaces."

(Testimony of Thomas Moore Price.)

What did you understand by the previous sentence, where it said: "Arch type structures"? Didn't you consider that that referred to tunnel concrete?

A. No. We had several arch type structures outside the tunnel.

Q. What is the diameter of the tunnel structure?

A. It is an arch.

Q. Did you overlook that when you were looking at the specifications, — that the tunnel was an arch?

A. I don't remember seeing it particularly, but I have explained why I felt the other concrete applied to this particular set of specifications.

Q. Would you say, now, you were in error in considering —

A. The engineer told me I was, before I even tried.

Q. Let's look at the headings which appear in Paragraph 10, which appears at the bottom of page 24. It says:

"Placing Concrete." Placing concrete refers to placing concrete everywhere on this project, does it not? A. I think so.

Q. The only place in the specifications where, in detail, the methods that will be permitted are specified? A. I think so.

Q. In the tunnels and outside the tunnels. Below "Placing Concrete," it says, "Time and Rate of Placing." Then, under Paragraph 11, you have, "Preparation of Forms and Surfaces." Then, on

(Testimony of Thomas Moore Price.)

Paragraph 12, on the right-hand column, page 25, you have, "Conveying, Placing and Compacting Concrete." That applied to all the concreting, whether it [1468] was in a culvert, an outside structure, a building or the tunnel; those are the only places in the specifications where you find concrete specifications — isn't that so?

A. That was the Engineer's interpretation of it.

Q. Do you find it anywhere else?

A. No, except under the "Tunnels," which refers back to it.

Q. We have already been over that, and you so testified? A. Yes.

Q. You said you were to look for your tunnel concreting in Section 13 and Section 15?

A. Well, 13 refers to it.

Q. Look on page 61, please, Mr. Price, and you will be able to follow this — page 61, the left-hand column, a portion of Section 32, Paragraph 6:

"Description. — The concrete lining for the tunnels shall consist of the concrete arch ring as shown on the plans, with steel reinforcing as designated or as otherwise directed by the District Engineer.

"The thicknesses of concrete shown are minimum thicknesses, and the attention of the Contractor is directed to provisions hereinbefore set forth in this section, requiring additional concrete as made necessary by the methods of

(Testimony of Thomas Moore Price.)

excavating, timbering. or otherwise supporting the excavation.

"7. Materials. — Concrete for lining shall be Class 'B' concrete, as provided in Section 13, 'Portland Cement Concrete,' of these specifications, and the provisions thereof and the provisions contained in Section 15, 'Concrete Structures,' shall apply to all concrete in tunnel linings except as modified herein. Grouting shall be performed as elsewhere specified in these specifications."

Now, what we have been considering here this morning in these specifications are all portions of Section 15, which appears on page 22 of the specifications, under the heading, "Concrete Structure"? That is true, is it not?

A. Yes. I have also made [1469] reference to aggregates, which are contained under "13," and refer —

Q. That was what you were guided by in your concreting; you made a reference over here on page 61, Section 32, to the Tunnel Concrete; you found yourself in Section 13, the aggregate, the constituents; you understood those specifications without and difficulty? A. Yes, I think so.

Q. "15" was your Concrete Structures?

A. Yes.

Q. You also looked at that, and you were told that the concrete lining should be built in the tun-

(Testimony of Thomas Moore Price.)

nel in accordance with the provisions of Section 15?

A. Yes.

Q. Then you came over to Paragraph 10, subparagraph 10, "Placing Concrete"; and you came to Paragraph 11, and you came to Paragraph 12 of Section 15? A. Yes.

Q. And you got mixed up on your interpretations of this 6 foot lift business?

A. I was so informed by Mr. Davis, the District Inspector.

Q. You thought a lift was the same as a layer?

A. No; I don't say that. I thought a lift referred to an amount of work on one set of the forms.

Q. At any rate, you got straightened out on that with the District Engineer, and you went ahead with the work.

A. I at all times tried to do what he wanted.

Q. Well, you went ahead with the work?

A. To the best of our ability.

Q. You made no written protest about the Engineer's interpretation?

A. No; I don't recall any.

Q. When the Pumperete came on the job in the latter part of June, 1935, you drew to Mr. Boggs's attention the authority that you received from the Industrial Accident Commission, by a letter dated some time in April; he had never seen that letter at that time, had he, Mr. Price?

(Testimony of Thomas Moore Price.)

A. Not to my knowledge. [1470]

Q. You had not advised him of any permission that you had to use electric power in the tunnels at that time? A. I don't recall advising him.

Q. The equipment had come on the job that day, or had just recently come on the job — not the same day; and you talked with Mr. Boggs, and advised him you had an electric motor to operate there?

A. Yes. I would like to explain my last answer: I had been contacting the District through Mr. Counzelman, who had contacted Mr. Collins. I had assumed that he — I say "assumed"; I had been told by Mr. Counzelman that the District Engineer — I don't mean Mr. Boggs — but Mr. Collins had been well aware what we were doing at all times, because I had given orders to Mr. Counzelman to make that clear to Mr. Boggs and the District; so I am unable to definitely state that he was not advised; I don't recall advising him, myself, but, under normal circumstances, I think he would have been advised.

Q. Well, Mr. Price, all I am trying to make clear is that, in so far as a copy of your letter of authority from the Industrial Accident Commission was not communicated to the District, you had not sent a copy of that letter?

A. No, sir; not to my recollection.

Q. What you have in mind about Mr. Counzelman and Mr. Collins — there is no quarrel about

(Testimony of Thomas Moore Price.)

that; they were in almost daily contact about problems?

A. The problem of getting the concrete underway.

Q. And, so far as you know from any conference, you have no knowledge that there was a direct discussion between Counzelman and Collins, or any other inspector of the District, and the Engineer, as to your authority to use the power?

A. No; I don't know as I told Mr. Counzelman to argue, but to thoroughly acquaint the District with every point of that power, and be sure everything was approved before we started anything. We had one sad experience in the portals, and I did not want another; but I was trying my best to make everything go along satisfactorily. [1471]

Q. And when Mr. Boggs saw your equipment on the job, — the two electric motors, with approximately 50 horsepower, as I understood it, — why, he asked you if you had authority to operate that type of equipment with electric power in the tunnels, from the Industrial Accident Commission, under their regulations?

A. Yes. I don't remember him asking me, but apparently, from the letter, he did ask me, and that is why I sent it.

Q. Then you went back to the Industrial Accident Commission and got specific authority?

(Testimony of Thomas Moore Price.)

A. I had already had specific authority, on the slip ring type of motor, but Mr. Boggs had called to my attention we apparently did not have authority on the induction type of motor.

Q. What is the difference between slip ring type of motor and the induction type of motor?

A. A slip ring type of motor is a motor in which the rotating part was electrically charged, by means of brass rings which rotate; whereas an induction motor. the rotating part is not charged.

Q. Is one less likely to spark than the other.

A. Yes.

Q. The induction type is a safer motor, in gas—

A. No; much less safe.

Q. Were the large motors on the Pumpcrete slip ring type?

A. Yes; it was necessary to use a slip ring motor on account of the tremendous starting power required for just a moment or two when the machine started up under a load; also, so it could be stopped at any time with a complete load in the pipeline; so it was necessary to have sufficient power so it could be stopped and again start with a load of concrete moving through the pipe. The slip ring motor, as I understand it, generates a tremendous torque, or starting force for a few moments.

Q. That is for the purpose of starting up with an inert mass of concrete? A. Yes. [1472]

Q. After you get the concrete moving, I think

(Testimony of Thomas Moore Price.)

you said it takes about one-tenth the power it did to start? A. Well, something like that.

Q. That is a general estimate?

A. Yes, a general estimate.

Q. This permit was for the slip ring motor?

A. Yes, I think it was.

Q. What was it, Mr. Price, that you had to get your permission for?

A. The small induction motor.

Q. Even though they were a safer type of motor than the other type? A. Yes.

Q. So you complied with the specifications and secured a specific safety order from the Industrial Accident Commission?

A. Yes. I would like to explain how it is I had received the permission: In a conference with members of the Safety Department of the Industrial Accident Commission in San Francisco, I had taken my mechanics and electricians over there, Mr. Counzelman, the designer and we had a meeting which lasted almost all the afternoon; and, in that meeting, I brought up, or somebody brought up, the point about the induction motor,—that it had been approved; and we particularly noticed the letter that we received from the Commission——

Q. You are referring now to a letter that was written in April. A. Yes; April, 1935.

Q. Now, you put this Plaintiff's Exhibit No. 74 on the easel the other day, and discussed it; and

(Testimony of Thomas Moore Price.)

there is another exhibit, gentlemen, that is the east portal drift. Exhibit 74 does not show the east portal drift; but Plaintiff's Exhibit 61 does shows those drifts. You will recall, as you stated, it was about the 1st of May, 1935, when you started those drifts? A. Yes.

Q. What did you do with the earth that was removed from the portal?

A. We wasted it on the Fish Ranch or Claremont Road on some private property. [1473]

Q. So, you did not haul any of that dirt over the hill? A. No.

Q. The way Mr. Marrin was indicating on the perspective map. You took the dirt and placed it in a ravine a little above the tunnel?

A. Yes; on private property.

Q. How many thousand cubic yards of that did you remove from the portal?

A. I don't know just at the moment. I know there was a lot, because we open cutted quite a portion of the tunnel job. The banks would slide, and we could not get a face, and we kept cutting back with an open cut to get to the point where we would be safe — where it would be safe for the workmen to start on the drifts.

Q. Isn't it a fact you removed about 25,000 yards of earth from the east portal drifts?

A. The drifts themselves?

Q. Yes.

A. I am unable to state. That is, definitely.

(Testimony of Thomas Moore Price.)

Q. In addition to that, you took, out of those rings on the east end, 60, 75 or 80 feet?

A. Yes; that wouldn't amount to much.

Q. It is shown on Exhibit 74 as being a part of that that was removed, is it not?

A. Just a portion of it .

Q. That also went into this ravine?

A. Yes.

Q. So, 25,000 yards would be a reasonably accurate estimate of the quantity of material that was removed from the tunnel at the east end and placed in the ravine?

A. From the center of the tunnel itself?

Q. Well, you had charge of the tunnel; you have had a lot of experience; you had an east portal approach; and you had an east portal building?

A. Yes. What I mean is we open cutted 35 or 40 or 50 feet of the tunnel on the east end before we ever started the drifts. We were unable to get the banks to the point where they were sufficiently safe, so we excavated quite a considerable yardage of material.

Q. Some of that material was taken a half mile down the road and put on the Eastbay Utility District land, was it not, in a ravine [1474] just this side of the Old Fish Ranch, the north side of the road?

A. I don't recall.

Q. At any rate, there was a considerable amount of material and approximately 25,000 yards that

(Testimony of Thomas Moore Price.)

came out of the tunnel itself and was placed at the east portal?

A. I believe so.

Q. Do you remember your examination of the geological report that you have referred to here, in a discussion of the conditions of the east portal as to whether they might be expected to be good or bad?

A. I think he did mention the east portal; but I would have to have it to refer to again.

Q. He also mentioned the west portal?

A. Yes, I know the west portal was definitely mentioned.

Q. It would have been possible, in this tunnel construction that you were doing, to construct drifts at the west portal and drive through ahead of the general excavation, would it not?

A. Yes, I think it would have been possible. I don't think it would have been practical, on account of interference with the other work.

Q. It would have been possible to proceed with the excavation of those drifts from the west end and have been well underground at the same time you were constructing the west portal building, would it not?

A. Yes, I think almost anything is possible.

Q. You did it at the east portal, didn't you; you had a building under construction on the east portal at the time you were doing this drift work?

A. Yes, we did.

(Testimony of Thomas Moore Price.)

Q. You used one drift to get underground, and then crossed over in another drift to open up —

A. Yes; but we had an area which had been open cutted behind the building.

Q. That would have been possible at the west portal, would it not?

A. Sure. It is possible. I did not think it was practical.

Q. You did not think it was practical. It was practical from the east end?

A. Yes, it was practical because we had an open cut — [1475]

Q. Well, isn't it true, Mr. Price, that you could have gone underground at the east portal without open cutting or drifting in from the east end of the east portal building, and gone right underground, and you would have later had to abandon approximately 100 feet of drift? It could have been done?

A. Yes; but I don't think it would have been practical.

Q. Why not?

A. To work on the building at the same time.

Q. Why not? You had the space in the building in which you had to put your foundation — the space for the transition house, and where the tunnel goes — you could go through the building foundation?

A. In the portal building, that goes underneath the tunnel — the struts —

(Testimony of Thomas Moore Price.)

Q. Your construction struts could have been placed underneath the tunnel? A. Yes.

Q. But you did not? A. No.

Q. It is a fact, however, that you went underground with one drift and then crossed over and drove ahead in two drifts? A. Yes.

Q. And it is also a fact, if you desired to do so, you could have started doing that work in 1934?

A. Yes.

Q. And if you had done it in 1934, you would have had your tunnel hole through much sooner; you would have had no difficulty regarding ventilation, and you would have had drafts through your tunnel? A. Yes.

Q. And you would have been able to use non-safety equipment in it, under those conditions?

A. Yes. I think that would have been a very impractical thing to do. The practical thing to do is to drive the tunnel from the west end completely. We only went to the east end when we found out we could not make sufficient progress on the west end to complete in time.

Q. If you had known all the factors that you would encounter in driving the tunnel, you could have — had you known those things in [1476] 1934, you would not have started the east portal drifts at all?

A. Yes. I think, if one knew everything prior to doing it, it would be a foregone conclusion as to what the result would be.

(Testimony of Thomas Moore Price.)

Q. A great many tunnels are driven from both ends, aren't they?

A. Yes. I don't think tunnels are driven from both ends when the grade is very excessive, though.

Q. How about the Claremont Tunnel?

A. I don't know. I think it was.

Q. Didn't you hear Mr. Larson testify that it was 3. x x x? A. No. [1477]

Q. There was enough grade in the tunnel so that a flood went into it?

A. The amount of grade in the Claremont is so slight that you or I could not tell the difference.

Q. Is there a grade in the Sunset Tunnel?

A. I do not recall. I think there was about 3 per cent.

Q. And they hauled the dirt out of the Sunset Tunnel in trucks, the motors of which were operated to hoist the dirt up the grade?

A. I think most of it was done by lowering, as I recall it, most of the excavation.

Q. Naturally, you would not be able to run it out by gravity?

A. The normal thing to do in a tunnel is to work it from the lower end to get the drainage. If your tunnel is too long, it can be done from both ends.

Q. Would you say that the Sunset Tunnel was an abnormally long tunnel?

A. No, I would say it was not. I would say it was a short tunnel.

(Testimony of Thomas Moore Price.)

Q. It was 4500 feet, was it not — 4200 feet. Would you say the Sunset Tunnel was a short tunnel?

A. It was 4200 feet, you say. I do not recall. I understand it was not a very long tunnel.

Q. Why did you say it was short?

A. Because, as tunnels go, it was not a very long tunnel.

Q. This is a short tunnel, and the same methods that were applied at the Sunset Tunnel as normal methods would be normal at the Broadway Tunnel, would they? A. Yes, possibly.

Q. In tne Sunset Tunnel they excavated from both the upper end of the ground and lower end, and then hauled the material, the tunnel muck, out in trucks, with hoists and cables, up the grade?

A. I understand they did some of it that way. I do not know to what extent. I am of the impression that it was not a great deal.

Q. In this tunnel it is a fact that you did drive from the east end, that you waited until 1935 to do it?

A. We drove wall plate drifts [1478] from the east end, and we did it after we found we were behind schedule on the west end.

Q. And it was your selection to drive from the west end until you started these wall plate drifts in the east end. You selected the method, didn't you, yourself?

(Testimony of Thomas Moore Price.)

A. It was our understanding the method that would be required on account of the muck removal, because it was the normal thing to do, and drive up hill.

Q. It was normal in the Sunset Tunnel?

A. I think they drove largely on the Sunset, I don't know how much, but that is my impression.

Q. Isn't it a fact that you don't know much about what happened in the Sunset Tunnel?

A. No, I have forgotten; it would only be my impression, because I have not refreshed by mind.

Q. Do you not know that they drove with full crews from both ends of the Sunset Tunnel?

A. I think they did a portion of it.

Q. Isn't it a fact that they continuously throughout the driving of the tunnel operation drove on each end with a full crew?

A. I do not think so, but I may be wrong.

Q. You don't know, then?

A. I say I don't think so.

Q. Mr. Price, you testified as to cave-ins, one on the 28th of August, 1935, and the second one on the 22nd of February, 1936. Those cave-ins occurred in the timbered portions of the tunnel?

A. Yes.

Q. There never was a cave-in in any portion of the tunnel where the concrete lining was installed?

A. No, there was not.

Q. I ask you if it was not a fact that on De-

(Testimony of Thomas Moore Price.)

cember 31 your name was dropped from the certified copy of the payroll that was furnished to the District by the Six Companies throughout the time it was on the contract, and that after the 31st of December, 1935, your name no longer appeared on the payroll certificate that was furnished to the District by the Six Companies?

A. I understand that to be the case. [1479]

Q. You do understand that to be the case?

A. Since you asked me, yes.

Q. Have you checked your own records on that?

A. No.

Q. We have a certified copy of the payroll.

The Court: What is the fact? Can you stipulate to that at this time?

Mr. Marrin: Surely, we will be glad to stipulate that at the end of 1935 Mr. Price was transferred onto a different payroll, the General Overhead Payroll of the Company, and consequently his salary did not appear in this particular payroll other than in connection with the work, although he was still retained in the employ of the company and his duties were practically the same.

Mr. Wittschen: Previous to that time his name was carried on it every month, and after that time it never did appear on anything that was given to the District?

Mr. Marrin: I am not arguing the case. I am simply giving the fact.

(Testimony of Thomas Moore Price.)

The Court: I am trying to get the important thing. What was the fact?

Mr. Wittschen: Mr. Marrin said that he was charged differently. The only thing we want him to admit is that for all the time from September, 1934, until December, 1935, on each and every payroll his name appeared as project manager, and after that it was left out and never appeared on anything given to us.

The Court: Is that a fact?

Mr. Marrin: That is a fact.

Mr. Tinning: That is all.

Redirect Examination

Mr. Marrin: Q. Mr. Price, if the ground through which the Broadway Tunnels were driven had been self-supporting, in your opin- [1480] ion could the entire tunnel have been excavated from the west end within the contract time? A. Yes.

Q. And there would have been no necessity for any excavation on the east end?

A. There would not, in my opinion.

Q. I meant starting the excavation at all from the east end?

A. You mean tunnel excavation; naturally we had to excavate for the buildings.

Q. The east portal drifts were not started until after you had prospected enough ground to determine that it probably would not be as represented in the geological report? A. Yes.

(Testimony of Thomas Moore Price.)

Q. Now, referring to your testimony that the work was shut down on August 21, 1935, if the ground had been self-supporting would it have made any difference in the continuance of the excavation whether the concrete lining had been placed or not?

A. I don't think it would.

Q. You could have gone right ahead with the concrete lining and the excavation at the same time?

A. That was my plan, to get to good ground so that we would not have to worry about maintaining it.

Q. There would have been no delay at all to the entire job from the fact that the concrete had not been placed at that time in the excavated portion of the tunnel?

A. I don't think there would have been, other than the delay which naturally slowed us up going through the portion of the ground which we had already excavated; in other words, if we go through bad ground until we could get good ground, we would have to delay going through the bad ground, that is what I mean.

Q. If you had been in good ground at the time you stopped, regardless of the character of the ground which you passed through in the past, you could have continued with the excavation?

A. I would have [1481] recommended continuing it.

Q. While you were concreting the portion that was open? A. Yes.

(Testimony of Thomas Moore Price.)

Q. It was because of the fact that the ground appeared to be continuously worse that the excavation was stopped? A. Yes.

Q. You were asked about the specifications on the Sunset Tunnel and you explained some of the differences between those specifications and the specifications for concreting on the Broadway Tunnel. Did the specifications for the Sunset Tunnel require internal vibration of the concrete?

A. No, I do not think they did.

Q. What do you mean by "internal vibration"?

A. I mean vibration with a mechanical machine of some kind that moves very rapidly through a very small place, like any kind of vibrator that jiggles the concrete and shakes it down into a homogeneous condition.

Q. What is the difference between internal vibration and external vibration?

A. Vibration inside the form and outside the form.

Q. On internal vibration the men have to get into the forms with these machines? A. Yes.

Q. And place them in the concrete and turn the air on and vibrate the concrete?

A. There are two types, there are air and electricity.

Q. And that form of vibration was required in the Broadway Tunnel? A. Yes.

Q. It was not required in the Sunset Tunnel, to the best of your knowledge?

(Testimony of Thomas Moore Price.)

A. To the best of my memory it was not.

Q. Would that make any difference in the handling of concrete?

A. I think it would be less dangerous. It is rather dangerous working around a pneumatic gun, because of flying rock.

Q. In other words, if the men had to be in the forms to vibrate the concrete it would be dangerous to shoot concrete when in there?

A. Yes, it would also make some difference—I would say that is [1482] largely the principal difference, because he would have to stop shooting while you vibrated.

Q. Mr. Tinning asked you on cross-examination about Six Companies, Inc., that built Boulder Dam, and the Six Companies of California. Those were separate corporations, were they not? A. Yes.

Q. The stockholders of the two corporations were not the same? A. They were not the same.

Q. In other words, Six Companies, Inc. had some stockholders who were not stockholders in Six Companies of California?

A. That is my understanding.

Q. Mr. Price, what is the general practice of contractors with respect to subcontracting work?

Mr. Wittschen: Objected to as immaterial, irrelevant, and incompetent, and not in any way binding upon the defendant, and calling for the opinion and conclusion of the witness upon a matter that is not the subject of expert testimony, or material in this case.

(Testimony of Thomas Moore Price.)

Mr. Marrin: On cross-examination they have emphasized the fact that there were subcontractors here, and that one subcontractor relied on another subcontractor, and created an erroneous impression. I want to simply bring out it is very general practice in large constructions to subcontract a part of the work, and that the procedure in this case of the general contractor which was pursued, taking the difficult part of the work on the tunnel and subcontracting the outside work, is not unusual in the construction industry.

The Court: In any event any subcontractor or any number of them, they would be answered for by the contractor.

Mr. Marrin: That is true, the contractor is responsible for them.

Mr. Wittschen: We merely brought out in answer to their claim [1483] of delay that they were subcontractors of their own choosing. It is not material what is done on any other job. There is ample authority on that if your Honor cares to hear it. It does not affect a particular job.

The Court: He has indicated the purpose of the offer. There is no confusion in my mind.

Mr. Marrin: If there is no confusion in your Honor's mind I will withdraw the question.

The Court: Very well.

Mr. Marrin: Q. Mr. Price, you were asked a question on cross-examination by Mr. Tinning with reference to the time when this road from this point

(Testimony of Thomas Moore Price.)

here up to the tunnel and from this point was constructed.

Mr. Tinning: For the sake of the record, you are referring to the Landvale connection and the west portion of the highway?

Mr. Marrin: Yes, I am referring to the highway from the west portal of the tunnel to its connection with Broadway and Keith Avenue in Oakland.

The Court: On what?

Mr. Marrin: On Defendant's Exhibit P.

Q. Would the public have been able to use that road, Mr. Price, had it been completed prior to the completion of the tunnel?

Mr. Tinning: Mr. Marrin, simply for the record, I object to the question. There was no intention on our part to in any way suggest that any part of the project could be turned over to the public use until it was completed as a whole. Our questions were with respect to delay.

Mr. Marrin: Will it be stipulated, then, Mr. Tinning, that this road would not have been in use by the public until the tunnel was completed? [1484]

Mr. Tinning: Yes, until the tunnel was completed.

Mr. Marrin: Mr. Price, in your cross-examination, in answer to a question of Mr. Tinning, you said that the only written applications for an extension of time that had been made were those of June 10, 1935 and the one, I believe, that was dated May 8, 1936. I call your attention to Plaintiff's Exhibit

(Testimony of Thomas Moore Price.)

49, which is a letter of August 28, 1935, and which has already been introduced in evidence and read, and draw your attention to the following part of this letter:

"You are further notified that we have and assert a valid claim for an extension of time for the performance of our contract arising from the causes heretofore stated to you in our request for such extension dated June 10th, 1935, and in addition to the extension of time requested therein, we now assert a right to and request such additional extension of time as may be necessary to complete the contract, in the event that we continue to perform same, based upon the following reasons in addition to those heretofore asserted:

"(a) Heavy, treacherous and unforeseen character of the ground making construction more difficult and slower through no fault of the contractor;

"(b) Inadequacy and unsafety of the design in accordance with our letter to you dated August 23, 1935;

"(c) Additional work required to be done not included, intended, or contemplated by the contract, plans and specifications."

That written application for an extension of time was also filed in addition to those which were testified to, was it not?

A. Yes. I did not think of it at the moment.

(Testimony of Thomas Moore Price.)

Q. You did not have that in mind at the time that you were testifying on cross-examination?

A. No.

Q. Now, I would like to call your attention to Defendant's Exhibit [1485] QQQ, which is a letter dated April 20, 1936, addressed to the Board of Directors, Joint Highway District No. 13, State of California, 1448 Webster Street, Oakland, California. Gentlemen:

"This will serve as formal notice that by proceeding with the construction of the Broadway Low Level Tunnels, the undersigned, Six Companies of California, does not waive, in any manner, the rights and claims which it has heretofore asserted and does now assert against your District.

"The undersigned does, on the contrary, reaffirm and reassert all of its claims as heretofore stated to you in writing, including particularly the statement thereof contained in the letter dated August 28th, 1935, from us to you, and will continue to assert each and all of said claims and any others which may have since been made, either in writing or otherwise, until the same are fully satisfied.

"Yours very truly,

SIX COMPANIES OF CALIFORNIA

By (Signed) HARRY J. KAISER,

President."

That was a reiteration of the claim——

(Testimony of Thomas Moore Price.)

Mr. Tinning: I object to the question as being leading.

Mr. Wittschen: And also calling for a conclusion as to what it was. It speaks for itself.

Mr. Marrin: Q. Did you have that letter in mind at the time you made your answer?

A. No.

Q. That was also filed with the District, was it not? A. Yes.

Mr. Wittschen: We introduced it.

Mr. Marrin: Mr. Price's answer was not quite correct and I wanted to clear it up.

Q. On one of the questions on cross-examination you testified that one of the subcontractors had some engineers checking quantities on the outside work. Do you recall that, Mr. Price? A. Yes. [1486]

Q. What do you mean by checking quantities?

A. A contractor is paid by quantities, so many yards of dirt or so many yards of concrete, or so many lineal feet, and this figure is set by the engineer, and the contractor generally measures or estimates the figures in some way so that he can be sure he is receiving his just reward.

Q. In other words, that is a check made immediately after the work is done?

A. Yes, it is different with different contractors; our own policy on jobs is to check it monthly as the engineer does when he gives it.

Q. I simply wanted to clear up what checking of quantities was. The checking of quantities is

(Testimony of Thomas Moore Price.)

simply so that the subcontractor knows that the engineer is allowing the proper quantity?

A. Yes, the subcontractor or any contractor.

The Court: We will be in recess now until two o'clock.

(A recess was here taken until two o'clock p. m.)

[1487]

Afternoon Session

THOMAS MOORE PRICE,

Redirect Examination (Continued)

Mr. Marrin: Q. Mr. Price, you stated, in answer to a question by Mr. Tinning on cross-examination, that you did not know of any other tunnel construction contract where the Hackley gun had been used that was not successful. Do you desire to correct your answer?

A. Yes; I do know of one case.

Q. What case was that?

A. It was the case in connection with the finishing of this tunnel by the succeeding contractor.

Q. Do you know the facts in connection with the attempt to use the Hackley gun in that case?

A. Yes; I was out there and saw the work.

Q. Will you state what they were?

A. They started out to concrete by the Hackley pneumatic gun, and it took them approximately two days to make the first pour, with it; in other words, they did not make much more progress than we had

(Testimony of Thomas Moore Price.)

made at the portal; that was about the first week in February, as I recall it, in 1937. After pouring a couple of more pours, they gave the system up and rented our Pumpcrete equipment to finish the job with that. I did not think of that at the time.

Q. You testified, on your cross-examination, that the tunnel did not cave in at any place where the concrete had been placed. How far back of the face of the excavation did the cavein of February 22, 1936 occur?

A. I would say the center of—approximately 50 feet back of the core face.

Q. How far was the concrete back of the face of the excavation at that time?

A. Approximately 125 or 130 feet.

Q. Under any plan of concrete that you considered, would the concrete have been closer than that to the face?

A. Not with movable [1488] steel forms. With the core removed, you need some place to work; you had to have space to work in excavation and concrete equipment.

Q. This much space was necessary to work on the excavation?

A. Yes, approximately that much space.

Mr. Marrin: That is all.

Mr. Tinning: No questions.

CLARK RANKIN,

called for the plaintiff; sworn.

Direct Examination

Mr. Marrin: Q. Will you give us your address, Mr. Rankin?

A. 729 Prospect Road, San Mateo, California.

Q. Will you state your education and your experience in construction work?

A. Well, I have lived in construction camps almost from the time I can remember; and my first job on construction work was in the summer of 1922 on the O'Shaughnessy Dam of the Hetch Hetchy Water Supply. The following summer I worked for the Southern Pacific Company, on their double tracking work of the road over the Summit, and on that work I became familiar with hard rock tunnels.

Q. There were some tunnels constructed on that work?

A. Yes; they were short tunnels, constructed through hard rock. I worked on both of these jobs, I might add, on the surveying parties, giving lines and grades for the work that was done by the engineering parties. During this time, I was going to either high school or college; and the following summer, I worked for the Central Pacific Railroad, or the Central Pacific part of the Southern Pacific; it was known as the "Central Pacific." They were putting up the money for this particular job,—the construction work of the Natron Cutoff; I believe it is now known as the Cascade Line.

(Testimony of Clark Rankin.)

Q. Where was that located?

A. This particular work was located in Oregon, —the summit of the Cascade Mountains. I first worked as an [1489] estimator for the railroad company on grading work, and later as a tunnel timbering inspector, tunnel concrete inspector and force account man.

Q. There were tunnels in that work?

A. There was a three-quarter of a mile tunnel, and also a deadend "Y" tunnel of about, I should say, 700 feet in length; single track tunnels.

Q. You may proceed.

A. I was attending Stanford University during this time, although, I might add, I delayed returning to college while being employed on these particular tunnels. I was interested in the work, and stayed there until the completion, in November of 1923, returning to college. Then the next summer I went to work for the Southern Pacific, at what is known as the Weed Cutoff. That was bridge work. I worked as timekeeper and estimator on that. The following summer, 1923, I returned to college and—that was the summer of 1924 that I worked on the Weed Cutoff. In 1925, I worked on a section of the Hetch Hetchy Water Supply; I cannot recall just now—it was pipeline work, if I remember right. The summer of 1926 I worked on the Coast Range Division; that was just opening up; it was the Hetch Hetchy Coast Range Division near Livermore; returning to school; and, in the summer of 1927, again

(Testimony of Clark Rankin.)

returned to these tunnels. During that time, I worked there—the work was just getting underway, and I worked, at that time—well, the work was primarily outside survey work, and also building camps and plant layout of the different portals and the shafts of the future tunnels and building construction.

In December, 1927, I returned to the Hetch Hetchy Project on the Coast Range Division at Livermore, and continued there, working either in engineering or supervisory capacities, depending on which was required of me, at the time, until, I believe, about August of 1934. From August, 1934, until December of 1934, I continued working for the City of San Francisco on the Hetch Hetchy Project, on [1490] the pipeline and building construction. December 13, 1934, I was employed by Six Companies of California, at the Broadway Tunnel, as personnel man or personnel manager. My duties, at that time with Six Companies, were to assist in the employment of tunnel men and labor for the project for Six Companies.

Q. How long did you continue in your position as personnel manager of Six Companies of California?

A. I might add, at this time, that I did not graduate in civil engineering from college; I did not finish my course.

The Court: Q. What excuse have you got for that?

(Testimony of Clark Rankin.)

A. I became primarily interested in the construction work and an opportunity I could not overlook.

The Court: That is all right.

Mr. Marrin: Q. In connection with the Hetch Hetchy work, did you work in the tunnels?

A. I did; I worked in the tunnels and in the office, depending on the work required of me. That was a period, as I say, from 1927 to 1934; and I covered practically every phase of the work at different times.

The Court: Q. How old are you?

A. Thirty-two.

Mr. Marrin: Q. What work did you do when you were in the tunnels?

A. Well, it covers a large field.

The Court: In this tunnel?

Mr. Marrin: In the Hetch Hetchy Tunnel.

The Witness: A. In the Hetch Hetchy Tunnel, I had the opportunity, as I stated before, to see practically every phase of the work. I had the designing of timber sets, in charge of Gunite operation, the headings, special structures. I had the outside designing of buildings, camp buildings, plants, setup of equipment, designing of underground equipment, grouting, superintendent of grouting. Well, there was just any number of things. I had a hand in practically every phase of it that went on at different times. [1491]

(Testimony of Clark Rankin.)

Q. How large were the Hetch Hetchy tunnels?

A. The Hetch Hetchy tunnels were circular in shape, 10 foot 6 diameter inside; the excavation varied from 12 to 16 feet.

Q. Why was the excavation so large?

A. To provide ample lining for the different kinds of ground encountered.

Q. Some difficult ground was encountered?

A. Very difficult.

Q. You stated you were employed by Six Companies on December 13, 1934, as personnel manager. What were your duties in connection with that work?

A. Well, under the system of hiring men, the men were sent to us from the different agencies. I acted as representative of Six Companies in connection with an agent of the National Reemployment Service, and, together, we investigated the experience of the men and passed upon that.

Q. How long did you continue in that position?

A. I continued in that position until about May 30, 1935.

Q. What change was made then?

A. Mr. Whitmire, superintendent of both the north and south tunnels, was injured. I believe it was on the morning of May 30th—It was thereabouts; and I was appointed superintendent,—temporary superintendent,—in his absence.

Q. Of the driving operations?

A. Of the driving operations.

(Testimony of Clark Rankin.)

Q. Were you superintendent of the driving operations from that time until the excavation operations were closed down on August 21, 1935?

A. I was in charge of the driving operations until August 21st, under more or less the direction of Mr. Whitmire.

The Court: Q. August, 1936?

A. August 21, 1935.

Mr. Marrin: For illustrative purposes, I would like to offer in evidence this poster, to be marked plaintiff's exhibit next in number.

(The poster was marked "Plaintiff's Exhibit No. 75.") [1492]

Mr. Marrin: Q. Mr. Rankin, will you describe the method of driving which you followed while you were in charge of the tunnel operations; and, in stating that, you can refer to Exhibit 75?

The Court: This is not his method, is it?

The Witness: This method was adopted by Mr. Whitmire.

The Court: Q. Before you went on the job?

A. Before I went on the job and that was where he left off. At the time I went on the job, this method had been employed in the south tunnel for some distance; this is the dragline scraper bottom drift method; Mr. Whitmire designed it and perfected it. At the time I went on the job—Immediately before I went on the job, I think, from April 30th until May 30th, Mr. Whitmire had been in charge also of the north tunnel; and he had not, at

(Testimony of Clark Rankin.)

that time, introduced this system to the north tunnel. He was using the wall plate system in the north tunnel, with these scrapers operating in the wall plate drifts to remove the muck.

Mr. Marrin: Q. Mr. Rankin, a Bagley scraper has been mentioned in the evidence here two or three times. Is a Bagley scraper represented on this drawing?

A. Yes. That is drawn to a scale. This is a Bagley scraper here, the whole back line there; and there is a block in the heading in the drift. This is the load line here, which extended to a hoist mounted on a Jumbo, as illustrated on a poster that was presented before. These two lower drifts were driving ahead. This is a section through the tunnel, and this is a cross-section cut through on the bottom line; that would come down like this. This line represents the core of this area in here, as I said before. Other drifts were pushed through there.

Mr. Tinning: Q. Mr. Rankin, so we can have more or less of a clear record here, which we will be able to follow, you refer to "these drifts,"—the two drifts at floor grade?

A. Yes, the bottom drifts. [1493]

Q. On either side of the tunnel?

A. On either side of the tunnel.

Mr. Marrin: And the witness is referring to the diagram on the left side of the poster.

A. This drift was driven ahead, and the muck that was broken down in the face of this bottom

(Testimony of Clark Rankin.)

drift was removed by the Bagley scraper running back and forth in here. Behind the bottom drift and above it was driven a second drift on each side. The muck from that drift was dropped into the lower drift and was also removed by the Bagley scraper. At the toe of the core was the air-operated shovel. Following behind the second drift, the operation was carried in one large drift or ring drift; this whole area here was opened up and dropped down on either side, and that muck was also taken out with the Bagley scraper.

Q. This longitudinal section, this part to which I am pointing, represents the lower drift to which I am pointing on the diagram on the right-hand side of the poster? A. Yes.

Q. The part in here, which is the second drift on the longitudinal section, represents the second drift on the poster? A. Yes.

Q. And the part here, which is the upper part on the longitudinal section, represents the ring part on the poster? A. That is right.

Q. And the muck was—These piles here represent muck which was dropped down onto these boards which were the floor of the second drift?

A. That is right.

Q. And these were then dragged out to the core; the wavy line represents the core? A. Yes.

Q. And dropped down through the face?

A. Yes.

Q. Was that method of excavation followed all the time you were in charge of the driving?

(Testimony of Clark Rankin.)

A. All the time, in both the north and south tunnels. [1494]

Q. What distance in each of the tunnels was excavated under your supervision from May 30, 1935 to August 21, 1935?

A. As I recall, the total excavation from May 30 to August 21 in the north tunnel was approximately 450 feet; in the south tunnel the distance was 550 or 560 feet. Those are approximate figures.

Q. What was the character of the gorund that was encountered in this excavation when you were in charge?

A. During the time I was in charge the ground was of a very mottled character, you might say, it was not in true formation. It consisted of what I called junk. There were kidneys of sandstone, I think the geologist called them a diabase dyke, and various formations in between. Some cherts, so called cherts.

Q. Was it self-supporting? A. Not at all.

Q. All required heavy timbering?

A. All required heavy timbering, as shown in the poster.

Q. What were the reasons for closing down the excavation on August 21, 1935?

A. Well, on August 21, 1935, particularly in the north tunnel, we were going into very bad ground, showing weight, and immediately behind the core, and in the headings of the drifts, we were pushing ahead, we had a cross spreader of the timbers in

(Testimony of Clark Rankin.)

the drift, and, by the way, they were 12 by 12 timbers, and they were showing considerable weight, the rings were in very bad ground, and showed weight right above the core.

Q. Where were the timbers causing the trouble in the tunnel, in what part of the tunnel?

A. At that time, that is, as of August 21, the posts throughout the tunnel that I had charge of the driving of were giving trouble practically all the way through, particularly in the north tunnel from a point about 25 or 30 feet to the west of the cross adit to the face.

Q. When you say the tunnel that you had charge of driving, you mean [1495] the part that had been driven under your supervision?

A. The part driven when I was there.

Q. Were the timbers in the sandstone section giving any trouble?

A. No, we did not have to replace any posts in the sandstone section.

Q. What did you do with the timbers which were causing trouble in the newly-excavated portion?

A. Well, we were patroling the tunnel, the walkers on shift at the time, myself, the District men, and any sign of weight and breaking of posts was given immediate attention. We had a timber crew, as I remember, we had timber men working there from June sometime until we quit, that replaced the posts as they broke.

(Testimony of Clark Rankin.)

Q. Pardon me just a minute. You said it was very heavy ground, as shown by the poster. What did you mean by that?

A. I meant to say that the timber was as shown on the poster, to take care of this ground.

Q. And by the timber you mean it required all of this spiling?

A. Spiling, breast-boarding, and the sets averaged 2-foot centers, they were 12 by 12.

Q. That means 2 feet from the center of this one to the center of this one?

A. There were 3 12 by 12 in a distance of six feet.

Q. Mr. Rankin, I show you a photograph, and I want to ask you to explain to the Judge what that shows.

A. This shows a heading of the lower drift, and this is a case where our spiling and the forward breast-boarding was giving weight, and this is the running condition of the ground that occurred at that point. The water that was in there was done away with.

Q. What date is that, approximately?

A. August 5, 1935.

The Court: Locate the tunnel.

A. It is the bottom drift of the south tunnel, as I remember it; I believe the south bottom drift of the south tunnel, if I remember [1496] right. That is my recollection at the time.

Mr. Tinning: Q. What station?

(Testimony of Clark Rankin.)

A. I could not say off-hand what station that was on August 5.

The Court: Locate it as near as you can.

Mr. Tinning: Mr. Price has the books that will do that. A. This one will give it approximately.

Mr. Marrin: May we have this offered so that we may have an exhibit number on it?

The Court: It may be admitted and marked.

(The photograph was marked "Plaintiff's Exhibit 76.")

[Set forth in the Book of Exhibits at page 290.]

Mr. Marrin: For the sake of the record, this testimony is with respect to Plaintiff's Exhibit 76.

Mr. Tinning: He referred to the top photograph shown on Plaintiff's Exhibit 76.

Mr. Marrin: Q. Can you locate that station, Mr. Rankin?

A. I would say it was a north drift from the progress report, that is, at station 124+72.

Mr. Marrin: Q. And that was at the inner face of the excavation on that date?

A. Yes, that was at the heading. This picture——

Q. The witness is now referring to the lower photograph on Plaintiff's Exhibit No. 76.

A. This picture was taken in the heading of the lower south drift of the north tunnel. It illustrates the spiling overhead, the 4 by 6 spiling, the breast-boarding of the base, and the rail blocks of the Bagley scraper.

Q. Is that the lower drift?

(Testimony of Clark Rankin.)

A. The lower right drift of the north tunnel, to the best of my recollection. I was with the photographer at the time these were taken, but that is as I remember it.

Mr. Tinning: Q. What station would that be?

A. That is at station 122+44, about.

Q. Is the photograph taken looking ahead in the tunnel, looking east? [1497]

A. The photograph is taken looking east. This illustrates the breastboarding, and you can see the end of the spiling at the face. They are just about ready to put the next set in.

Mr. Marrin: Now, I have here a series of photographs which were taken in the tunnel in the early part of August, 1935, which I would like to offer as one exhibit.

Mr. Tinning: How many are there in that group that you are offering? They are numbered.

Mr. Marrin: They are 131, 132, 133, 135, 140 and one without a number. There are six photographs.

The Court: Mark them as one exhibit consisting of six photographs.

(The photographs were marked "Plaintiff's Exhibit 77.")

[Set forth in the Book of Exhibits at page 291.]

Mr. Marrin: Q. Now, Mr. Rankin, will you explain to his Honor what this photograph shows, and the witness is now referring to the photograph marked 131, Plaintiff's Exhibit 77.

(Testimony of Clark Rankin.)

A. This photograph was taken in the south tunnel looking toward the west portal. It illustrates the cross bracing and diagonal bracing that was made necessary by the weight shown on the timbers at that location. I believe that this is in the vicinity of the first cross adit. This is a square set, approaching the 14 feet of timbers that were placed across the tunnel to hold the weight of the ground.

Q. By the braces you refer to the cross braces?

A. Yes, the diagonal bracing. These are the cross bracing and this is the square set in here.

Q. Do you know at about what station that adit was? A. I could not recall off-hand.

Q. Could you tell from this?

A. At about station 118+25, roughly, in the south tunnel. [1498]

Q. That picture was taken in the south tunnel?

A. It was taken in the south tunnel looking toward the west portal.

Q. Take the photograph marked 132, Plaintiff's Exhibit 77; will you explain what that shows?

A. This is a photograph also taken in the south tunnel on the same day looking toward the face, but some distance back. It shows in the immediate foreground the 12 by 12 segments that are ready for placing in the ring.

Q. These are the segments?

A. Yes, and beyond that the jumbo on which were mounted the hoists for pulling the Bagley scraper. This, by the way, is the jumbo which was

(Testimony of Clark Rankin.)

originally designed for the job but modified to fit the use it was later put to, that is, a hoist mounted for the Bagley scraper.

Q. What was the use made of the jumbo?

A. The jumbo carried the hoist that motivated the Bagley scraper. These tracks on either side of the tracks that the jumbo moved ahead on.

Q. Now, refer to photograph 135, Plaintiff's Exhibit 77, and will you explain what that shows?

A. This photograph was taken in the south tunnel at a short distance west of the core, it shows the core and the lower and upper drift on the left-hand side of the tunnel looking toward the east. It also shows the top of the core, or the so-called ring.

Q. These at the left of the photograph are the drifts?

A. Those are the drifts as illustrated on the poster Exhibit 75. This in the foreground is the Bagley scraper.

Q. And this photograph No. 132 and this photograph No. 133 were taken on August 6, 1935?

A. That is correct.

Q. Referring to photograph 135, of Plaintiff's Exhibit 77, will you explain what that shows?

A. This photograph was taken in the south tunnel on the same day as the previous photograph. This is at the face of the ring, shows the timber in place, and the top of the core. [1499]

Q. This timber in this photograph 135 shows the timber in the ring at the top of the arch?

A. That is right.

(Testimony of Clark Rankin.)

Q. Now, referring to photograph No. 140 of Plaintiff's Exhibit 77, will you explain what that shows?

A. This is an illustration of the breastboarding at the face of the lower drift in the south tunnel; this is marked the "Lower north drift." I am not certain whether the one preceding it is marked "Lower north drift," or this one is right. There is some confusion, but these were pictures in the south tunnel, one heading into the other. This photograph shows the ring.

Q. These timbers ahead of the man as shown on the photograph were the breastboarding?

A. This represents the breastboarding and this represents a flow of water coming through.

Q. Now, refer to the photograph on Plaintiff's Exhibit 77 which is unnumbered, and which has the legend, "Showing excavation method in arch of north tunnel, F method." Will you explain what that shows?

A. This shows excavation in the arch of the north tunnel using the same system. This is the top ring. These are the ring timbers. These are the lagging that has been placed ahead and this is the core, here. This is taken on a sort of an angle. This shows the dark shaley material here, and this is a kidney, the lighter material there.

Mr. Tinning: Q. Which is the kidney of lighter material?

A. This is the kidney of lighter material shown here.

(Testimony of Clark Rankin.)

Q. Where the man is standing?

A. Yes. He is spading this lump out here in order to get in another set of timbers.

Mr. Marrin: The kidney of lighter material shows lighter on the photograph than the other material?

A. That is right.

Q. And the part of the photograph back of the man who is working with an air hammer or drill is the ground?

A. Or the face of the [1500] ring drift.

Mr. Marrin: I have one more photograph here which I would like to offer in evidence as Plaintiff's Exhibit 78.

The Court: It may be admitted and marked.

(The photograph was marked "Plaintiff's Exhibit 78.")

[Set forth in the Book of Exhibits at page 297.]

Mr. Marrin: Q. Mr. Rankin, referring to Plaintiff's Exhibit No. 78, will you explain what that shows?

A. This is a picture looking toward the west portal of the north tunnel, from a station some distance in, in fact, it is probably about 50 feet east of the station where the first cross adit carries on to the south tunnel. This is the rigging that we used to haul the cars out of the cross adit and elevate them for dumping into the heading muck cars.

Q. These timbers at the side of the tunnel are what are known as spreaders?

(Testimony of Clark Rankin.)

A. These spreaders were put in after this weight became noticeable, that started at that section.

Q. Now, did you remain in the employ of the company after the excavation operation was shut down on August 21, 1935?

A. Yes, I did. Following the shut-down of August 21, I was working on a general survey of the conditions of the tunnel, that is, a survey of the timber and things of that nature.

Q. But you did not supervise any further excavation operations for the company?

A. Not at that time.

Q. Did you ever thereafter supervise any excavation operations for the company? A. I did.

Q. Where was that?

A. On the east portal ring and at the concrete on the east portal.

Q. When were you employed on that work?

A. I believe from some time in the middle of September until about the 3rd of November.

Mr. Wittschen: 1935? [1501]

Mr. Marrin: Q. 1935? A. 1935.

Q. Did you leave the employ of the company on November 3, 1935?

A. I cannot exactly place that date; it was somewhere around there, I was transferred to other work.

Q. You were not thereafter employed on this particular work? A. No.

Mr. Marrin: You may cross-examine.

Mr. Tinning: No questions.

VICTOR G. HINDMARSH,

Called for the Plaintiff; Sworn.

Mr. Marrin: Q. Mr. Hindmarsh, what is your present occupation?

A. General superintendent for Bechtel, McCone Co., building refineries for the Standard Oil.

Q. Where is the refinery being built?

A. Richmond.

Q. Will you state your experience in construction work, Mr. Hindmarsh?

A. Well, I started construction work in 1901 in the engineering department of the Southern Pacific Company on the Central Pacific reconstruction in Nevada, at Linden. We were building three tunnels there, straightening out the line running from, as I remember it, about 1500 feet to 4000 feet long. In 1905 I was transferred from there to the Bayshore Cut-off and took charge of the surveying on tunnel No. 1 and tunnel No. 2.

Q. That was for the Southern Pacific Company?

A. Southern Pacific Company. The latter part of 1906 I was transferred to the Dumbarton Bridge project and had charge of the engineering and the construction of the railroad bridge across San Francisco Bay, between the years 1906, the latter part of 1906, to 1910. In June, 1910 I was transferred to the Natron Cut-off in Oregon, as resident engineer of 15 miles of that line, which was let under contract, [1502] and on that job there was principally grading, a lot of bridges, culverts, and one tunnel about 600 feet long. I worked there until 1913 and

(Testimony of Victor G. Hindmarsh.)

was then transferred to Marshfield, Oregon, as resident engineer in charge of construction on about 30 miles of the road of the Willamette Pacific Railroad; this was grading, several large bridges and three tunnels ranging from 900 feet to a mile long in the Coast Range. I stayed there until July, 1917, when I went to work for the Government in charge of the North Portland Shipyard, and stayed there until the armistice was signed, and I left the Government the latter part or late part of 1918 and went to work for J. F. Clark & Company, general contractors, as general superintendent, and while with them I widened a tunnel for the Northern Pacific Railroad at Corbett, Oregon, about 600 feet long, and lined it with concrete, and did considerable highway work in Eastern Oregon. I stayed with them until 1922 when I went to work for Grant, Smith & Company, as general superintendent, and was sent to California in charge of all of their California work. They were just finishing up the tunnel at Susanville, it was practically completed; they were working on the Pulgas Tunnel, at Redwood City, which was under the City of San Francisco, under Mr. O'Shaughnessy, and a highway at Sonoma County. I finished up this work in California and went to Tacoma, where we built a large highway bridge for the State of Washington, which took a little over a year's time to build, and I was transferred to Chelan, Washington, in charge of a project for the Washington Power Company, on which

(Testimony of Victor G. Hindmarsh.)

Grant Smith had the contract; this consisted of two and a half miles of tunnels and a dam and a power house. I worked there until the fall of 1927, when we finished the project, and I went with the General Construction Company as general superintendent in charge of all their outside work; this consisted of a lot of canal work in Eastern Oregon, the Bureau [1503] of Reclamation, a railroad from Nissa, Oregon, to the Owyhee Dam, and when we finished the railroad we were successful contractors on the Owyhee Dam, and on this railroad there was a 600-foot tunnel. Then I worked on the dam, on which there was a diversion tunnel 30 feet in diameter, mostly, and 300 feet of it, I believe now, was 40 feet in diameter, and the shaft, 300 feet high, was 30 feet in diameter. I left there in the middle of 1930, went up to Alberta, Canada, and built a canal for the City of Calgary across the Elbow River, which was in connection with the City Water-Works, and a filtration plant for the City. I completed that job in the spring of 1932 and came to Sunnyvale, California, and went to work for J. H. Pomeroy Company, as general superintendent on the Sunnyvale Hangar, and worked with him until February, 1934, when I went to work for W. A. Bechtel Company, and while I was with them I estimated a good many jobs and was bidding work most of the time till, I believe, February of 1935, I went to work for Bridge Builders, Inc., of which the Bechtel Company was a stockholder, and had charge of the

(Testimony of Victor G. Hindmarsh.)

painting of the Bay Bridge, which the Bridge Builders had a contract for, and also estimated work all over the United States for the company until September, 1935, I went to work for the Six Companies of California as general superintendent of the construction of the Broadway Tunnel.

The Court: What date was this?

A. September 5, 1935. [1504]

Mr. Marrin: Q. What were your duties as general superintendent of construction for Six Companies of California, Mr. Hindmarsh?

A. I had charge of all the construction work, both inside and outside of the tunnel.

Q. Did you examine the Broadway Low Level Tunnels which were being constructed by Six Companies of California about the time you were employed as general manager?

A. Yes, I examined them.

Q. Will you describe the condition of the north tunnel at the time, as you observed it?

A. Well, the north tunnel: there had been a cave-in, in the north tunnel, at about Station 114; it filled the tunnel full; the north tunnel had been driven about, as I remember it, 1000 feet, fully excavated and timbered.

Q. How far had the concrete lining been placed in the tunnel?

A. The concrete was in about 170 feet.

Q. What was the condition of the timbering, as you observed it?

(Testimony of Victor G. Hindmarsh.)

A. The timber was not in bad condition; some of it showed considerable weigh and showed considerable of it had moved into th. concrete, considerably; but did not see that there was any immediate danger of collapse of any part of the tunnel; there was very little of it broken. Some of it showed weight, from crushing in at the adit rather than anything else; and one or two of the segments had broken; but, outside of it being moved in or pushed in, so it would have to be moved to concrete, why, the tunnel was not in bad condition.

Q. Would all of the timbers have to be moved back?

A. No; I would say there was probably in the neighborhood of 50 per cent of it that had to be moved.

Q. Where was most of the timbering that had to be moved back?

A. Most of it was in the north tunnel, from the adit at Station about 118 and over to the heading.

Q. That would be from this adit, which is shown—I am now referring to Plaintiff's Exhibit 74, and the longitudinal sections [1505] of the tunnels on there, and referring to the adit shown on there that is furthest toward the westerly end; and you stated the heavier condition of the timbering was from this adit up to Station 114 in the north tunnel?

A. 118 in the north tunnel.

Q. From about 118?

(Testimony of Victor G. Hindmarsh.)

A. Yes; right in here, which is about Station 118, or 117+75, up to Station 122; right in here, some place.

Q. Mr. Hindmarsh, what was the condition of the timbers in the south tunnel?

A. The south tunnel was considerably better; it had not shown the movement that it did in the north. Around the adit, at practically the same station in the opposite tunnel, it showed some pretty heavy moves in there; and, of course, those moves—that had moved considerably, especially the posts; but the rock,—the rest of the tunnel had not moved very much. From the portal up to the adit, the timber was practically not moved at all; but, from the adit up to the face, some of the posts had been moved, and a good many of the segments and the caps had lowered so they encroached into th concrete, and would have to be either trimmed heavily or moved off the concrete, or something would have to be done.

Q. What did you do after taking charge of the work, Mr. Hindmarsh?

A. Well, the first thing that was apparent to me that had to be done was to find out the exact condition of the timbers; and I made a complete survey of every set there was in both tunnels, to ascertain just how much they had encroached into the concrete, and what had to be done,—whether some of them could be trimmed or whether some of them had to be moved.

(Testimony of Victor G. Hindmarsh.)

Q. Mr. Hindmarsh, I show you here a volume of sheets which are marked "Timber Intrusion, North Tunnel," and ask you to explain to the Judge what that shows, if that is the survey to which you refer.

The Court: What is this, for the purpose of the record?

Mr. Marrin: This is a timber survey which was done under Mr. [1506] Hindmarsh's supervision. A few of the sheets were taken prior to the time he came on the work, but most of it was done afterwards; and if there is no objection I will offer it in evidence before it is used.

Mr. Tinning: Well, Mr. Marrin, could we just ascertain what you have in mind?

Your Honor, if there is going to be an afternoon recess, perhaps Mr. Marrin and I could check this up and save a good deal of time. There is no intention to delay the matter.

The Court: That is a timely suggestion. We will take a recess and you can do that.

(Recess)

Mr. Marrin: If the Court please, I think we are in agreement on this.

Mr. Tinning: May I ask a question or two, before you proceed?

Mr. Marrin: Yes.

Mr. Tinning: As I understood Mr. Hindmarsh's statement, apparently this was practically every timber, and in the south tunnel there are 182 posts, and there were 1010 feet of tunnel; that would seem to

(Testimony of Victor G. Hindmarsh.)

be a timber space of 5½ feet. I think, from what he previously said and from my own knowledge, they are a little closer than that.

The Witness: That spacing of the timber was 2 posts every 6 feet. That is after I took charge of it. Before that, I think they were a little closer together; there were 3 posts every 6 feet.

Mr. Tinning: Q. If you had a group of 3 timbers, you just took one measurement of that set?

A. Yes.

Q. So that there have been some omitted in this record of the timber measurements in the south tunnel—— A. Yes.

Mr. Tinning: That was the intention.

The Witness: That was the intention. [1507]

Mr. Tinning: Q. And, likewise, the north tunnel? A. The north tunnel, too.

Mr. Wittschen: Q. A set might consist of one or two timbers?

A. Yes; might be one or two or two or three.

Mr. Tinning: Q. If they were placed close together, they are measured as one set? A. Yes.

Q. And one measurement was taken?

A. That is right.

Mr. Marrin: I offer in evidence a volume entitled "Timber Intrusion, North Tunnel, Six Companies of California-Joint Highway District No. 13," as plaintiff's exhibit next in order.

(The volume was marked "Plaintiff's Exhibit No. 79.")

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: I offer in evidence a volume entitled "Six Companies of California-Joint Highway District No. 13, Timber Intrusion, South Tunnel," as plaintiff's exhibit next in order.

(The volume was marked "Plaintiff's Exhibit No. 80.")

Mr. Marrin: May I have Exhibit 79, please?

Q. Mr. Hindmarsh, I have selected here at random, from Plaintiff's Exhibit No. 79, one of the pages, which happens to be page 11, and I would like to have you explain that to the Judge—explain what that shows.

A. These figures here on the inside are inches; they show the clearance of the timber outside of the concrete, so that there is no encroachment in this set whatever. They are all outside of the concrete lines.

Mr. Tinning: Q. Where it says 8 inches?

A. That is 8 inches outside.

Q. Outside and above; and this is 5 inches?

A. Yes.

Mr. Marrin: This means the post which would be on the north side of the north tunnel is outside of the concrete line by 4 inches?

A. That's right.

Q. And the date at the bottom states, "Position of Timber with Relation To Prescribed Neat Lining on 9-11-1935." That is the date [1508] on which the survey was made of that particular set?

A. Yes.

(Testimony of Victor G. Hindmarsh.)

Q. At Station 115+18; that is the station in the north tunnel at which this timber set was?

A. Yes.

Q. Then, as it states, the inside figures are inches of clearance; these are the figures in here; and the outside figures are inches of encroachment? Perhaps another one would be clearer.

Referring to page 17, referring to the outside figures, "2" on the posts on the north side of the north tunnel: that means that the posts at that point encroach 2 inches within the neat line of the concrete? A. Yes.

Q. And at the lower part of the same one, the post is 2 inches outside of the neat line of the concrete? A. Yes.

Q. At the point marked "O. K." the timber is just at the neat line of the concrete? A. Yes.

Q. Then, "Date of Placing Post, 3-22-1935": that means that the posts on that diagram were placed on March 22, 1935, page 17? A. Yes.

Q. The date of placing the arch segment on 3-18-1935 means that the segments above the wall plate shown on that diagram were placed on March 18, 1935? A. Yes.

Q. And the date of the arch concrete pour, October 18, 1935, shows the date on which the concrete was poured? A. Yes.

Q. Where it says, "Measurement Obtained by Pantograph or Tape," it shows the way in which the measurement was taken?

(Testimony of Victor G. Hindmarsh.)

A. Yes; some were taken with a tape and some with a pantograph.

Q. Will you explain what a pantograph is?

A. Well, it is simply an instrument which you set up on a certain part of the middle of the tunnel, and it shows the distance any part of the arch in the tunnel is, so you can get the exact measurement,—the exact distance or position of the timber.

The Court: Q. From your center point?

A. That's right. [1509]

Mr. Marrin: Q. Whereas it shows on page 17, with reference to the cross in the square opposite the word "Tape," it means it was measured by tape measurement?

A. Yes. When we did that, we spotted a point that high, and we took measurements from that, with a tape, to each segment.

Q. When you referred, in your testimony earlier this afternoon, to timbers encroaching, you referred to the movement of the timber into the neat concrete? A. Into the neat concrete line.

Q. Lined section.

Mr. Tinning: How about this one; how was this taken?

A. Well, that was taken with a tape; I know, because I know the man who took it; he did not use the pantograph at all.

Q. It was just omitted? A. Just omitted.

Mr. Marrin: Q. This survey was taken, to the best of your knowledge, in the north tunnel, start-

(Testimony of Victor G. Hindmarsh.)

ing at Station 114+80—Would you point out where that station is, on Plaintiff's Exhibit 42?

A. Right about at that point.

Q. Was that east of the cave-in?

A. Yes; just east of the cave-in.

Q. Of course, you did not make a survey of the timber in the caved-in section?

A. No; you could not.

Mr. Tinning: Well, Mr. Marrin, this measurement that appears on page 1, appears to have been taken on the 15th of August, 1935. That was two weeks before the cave-in. I think Mr. Hindmarsh said there were some measurements taken before he was on the job.

The Witness: Yes, that's right. When they started to concrete, they found, in that section where it caved in—that was the point where they were changing the timbers, taking the timbers out, when the tunnel caved. They had taken measurements there to see what the encroachment was. [1510]

Mr. Marrin: Q. To the best of your knowledge, this contains a survey of each timber from Station 114+80 to Station 121+98 in the north tunnel?

A. Well, so far as I recollect, it does. We tried to get every timber. There may be some of them left out; I don't know; I cannot say about that.

Q. But most of the timbers?

A. Yes, most of them were taken.

Mr. Tinning: The important thing is that where-

(Testimony of Victor G. Hindmarsh.)

ever timber measurements occur here, it was accurately made and recorded?

A. That is right.

Mr. Marrin: Q. Referring to Plaintiff's Exhibit 80,—which is a similar survey of the timbers, taken in the south tunnel,—is it not? A. Yes.

Q. —that survey started at Station 114+10?

A. Yes. [1511]

Q. Did that timber survey enable you to locate where the timbers would have to be set back?

A. Yes, either trimmed or set back.

Q. About what proportion of the tunnel did you find the timbers had to be set back?

A. Well, that must have been about 60 or 70 per cent. of it.

Q. 60 or 70 per cent. of it? A. Yes.

Q. What did you do then?

A. I first started in putting in square sets in both the south tunnel and the north tunnel, wherever we thought it was necessary to either remove timbers or trim them very heavily.

Mr. Marrin: In order that we may understand what a square set is I have a drawing for illustrating his testimony which I would like to offer as Plaintiff's Exhibit next in order.

Mr. Tinning: Subject to check.

Mr. Marrin: I just want it as an illustration.

Mr. Tinning: It is not supposed to illustrate any particular timber that was put in. It is to illustrate

(Testimony of Victor G. Hindmarsh.)

a standard method of square setting, is that correct?

Mr. Marrin: That is correct.

(The drawing was marked "Plaintiff's Exhibit 81.")

[Set forth in the Book of Exhibits at page 298.]

Mr. Marrin: Q. Explain to the Judge how that square setting was done.

A. This is a typical square set.

Q. You are referring to the drawing on the left-hand side of Exhibit 81, looking at it, and that drawing shows a cross section of a square set?

A. Yes. This square set is designed so that our muck cars can go through here for taking out the debris or anything; the tunnel was not being operated at that time, but there was a lot of debris that collected in here, and had to be taken out, and it was to get in, back and forth; it was also designed so that the concreting could be placed and do very little changing to the [1512] square sets, by leaving room on both sides so that our wood form arch section could be placed right into the square set, our square sets being centered on the concrete forms.

Q. These small things at the bottom here illustrate railroad tracks?

A. That is the muck track.

Q. You erected first these posts?

A. Erected these posts with caps on and put these braces in.

Q. And then braced the timber on the edge of the tunnel to the square sets?

(Testimony of Victor G. Hindmarsh.)

A. Put stulls in wherever necessary to keep any timber that showed any weakness at all or showed any movement.

Q. That square set was for the purpose of holding the timber in the tunnel rigid? A. Yes.

Q. Until it could be concreted?

A. Until it could be concreted.

Q. Referring to the drawing on the right-hand side of Plaintiff's Exhibit 81, explain what that shows.

A. This shows a side view of the square set; the dark line in the plan represents the square set, and the two light lines represent the permanent timber.

Q. That is a view you would get if you were standing in the center looking at the side?

A. Looking at the side.

Mr. Marrin: As further illustrating that I have some photographs here, four, taken of the square setting in the tunnels, which I would like to offer as our exhibit.

(The four photographs were marked "Plaintiff's Exhibit 82.")

[Set forth in the Book of Exhibits at page 299.]

Q. Mr. Hindmarsh, I show you Plaintiff's Exhibit 82, and ask you to explain to the judge what this represents. The witness was referring first to the photograph which was marked "Typical square set."

A. I do not know exactly what station this is in, but it shows a typical square set with a railway

(Testimony of Victor G. Hindmarsh.)

opening, by which you would get the cars through, and the bracing that is taking care of it. [1513]

Mr. Tinning: Q. What size timbers are shown there? A. Mostly 12 by 12.

Q. Are those in the photograph 12 by 12 next to that man?

A. Yes, that is 12 by 12. Some of them—well, now, I would not say—there are some places we used 10 by 10, but most all of the timbering was 12 by 12; there might be a 10 by 10 once in a while.

Q. Refer now to the one marked "Typical square setted section."

A. That just shows a picture of the section that was square setted, showing the tracks all the way through.

Q. Refer now to the picture marked "Square setting of south tunnel," and will you explain what that shows?

A. That shows a typical section through the square setting along about the adit; that is the Pumcrete pipe laying there where we had used it pumping concrete up into the forms.

Q. Refer to the next photograph, marked "Square setting, north tunnel."

A. This is the square setting, as I remember it, I am not sure about it, I think this is right close to the adit in the north tunnel; that was in heavy ground there and we had to cross brace here, which shut off our track entirely.

(Testimony of Victor G. Hindmarsh.)

Q. These are typical of the square setting that was done on the tunnel following the cave-in of August, 1935? A. That is right.

Mr. Marrin: I have a drawing which was made up from company records, which shows the place in the two tunnels where the square sets were placed. I would like to offer that in evidence as Plaintiff's Exhibit next in order.

(The drawing is marked "Plaintiff's Exhibit 83.")

[Set forth in the Book of Exhibits at page 303.]

Q. Mr. Hindmarsh, will you take Exhibit 83 and point out to the Court where these square sets were placed in the two tunnels following the cave-in of August 28, 1935?

A. The square setting in the south tunnel was all of this black mark, referring to the square [1514] setting that was laid where the cave-in was.

Q. The witness is now referring to the shaded portion between station 113+49 and 114+90.

A. That was square-setted where the cave was; just ahead of the cave, 115+63 and 116+25, it showed heavy ground, and we square-set that, and we did not put any more square sets until 117+55, and it was square-set solid from there to 122+05, and in the north tunnel—that was up to what date, did you say?

Mr. Tinning: October 7, 1935.

A. I forget what date you asked me.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Oh, no. This square setting at station 125+87 to 126+90 in the north tunnel was done in February, 1936? A. Yes.

Q. That was the place of the second cave-in?

A. Yes.

Mr. Tinning: So that I can understand and not interrupt you, the date that appears above the point, here, supposed to indicate when that square setting was done, 2/22/23, 1936?

A. They were about practically that date; we worked all day on that cave-in; we did put about six square sets in.

Q. Take here between 117 plus 55 and 122 plus 05, there is a date 10/1 to 10/7, 1935.

Mr. Marrin: Those apparently indicate the date on which the square setting was done?

A. Yes. Those were in the south tunnel. That is all the square setting that was necessary in the south tunnel.

The Court: What is the distance?

A. 100 feet.

Q. How do you account for that?

A. There was considerable difference between the north tunnel all the way through than the south tunnel, the ground was heavier and broken up.

Q. How do you account for that?

A. It is pretty hard to account [1515] for it except this tunnel ran up a gulch and this tunnel was on one side of the gulch, and this on the other. That is the only way I could account for it. It seemed to

(Testimony of Victor G. Hindmarsh.)

be in a little better formation in the south tunnel than the north tunnel. We never had anywhere near the trouble in the south tunnel as the north tunnel.

Mr. Marrin: Q. The formation was different even in one tunnel?

A. Yes, there was considerable difference in the north tunnel and south tunnel.

The Court: What is this, here?

A. That is where they figured there was the Wildcat fault. That was the only place in the south tunnel it was necessary to put in square setting.

Mr. Marrin: Q. Now, after you placed the square set, what did you do, Mr. Hindmarsh?

A. During the time we were placing the square sets, as soon as we could get organized at all we started in concreting; in several places in the tunnel the steel forms were set up, in the portal, right about 200 feet of the portal on the south tunnel, and we started concreting with those forms, and we poured one pour with the forms that were set up west of the cave-in in the north tunnel; then I tore these forms down and moved them to the south tunnel and through the adit and back into the east end of the cave-in and set them up in there ready to pour concrete, and while we were doing this we were continuing with the square sets and also building wood forms where we thought it was going to be necessary to use wood forms for concreting before the square sets could be taken out.

(Testimony of Victor G. Hindmarsh.)

Q. In concreting where the square sets were did you use steel forms or wooden forms?

A. No, it was necessary to use wood forms.

Q. Referring to Plaintiff's Exhibit No. 81, these wood forms were built right in behind the square sets, were they?

A. Yes, the square sets were designed purposely so that the wood forms could [1516] be built right in them.

Q. What did you do with the braces that ran from the square sets to the timbers?

A. When we got ready to concrete, before we arrived at these lagged concrete forms the wood stulls were cut off and steel stulls where necessary were provided to take their place, and they were concreted right in, left right in the concrete.

Q. Why did you substitute steel for the wood?

A. So that it would not be necessary to take the wood out of the concrete afterward.

Q. In other words, if you had left the wood in there you would have had to take it out?

A. You would have to botch around it and then remove it and fill that portion up with concrete afterward.

Q. By substituting steel you were permitted to leave that in the concrete? A. Yes.

Q. Why didn't you use the steel forms in this section?

A. You were unable to remove your square sets before it was concreted, and you could not move the steel forms in where the square sets were.

(Testimony of Victor G. Hindmarsh.)

Q. What was the purpose of the square sets, Mr. Hindmarsh?

A. Well, there were two or three reasons for square-setting. One reason was that the Industrial Accident Commission had given the Six Companies an order that they could not move any of the timbers or trim them without first square-setting. Then another reason was to stop any movement, any further movement, if possible, until we could get the tunnel concreted.

Q. And the square sets held the timber until the concrete could be poured?

A. Yes. Another reason was where we had to use wood forms we could use the square sets for centering on the wood forms.

Q. How long were these wood forms left on the concrete?

A. To the best of my recollection we generally left the forms on for about seven days after concreting. [1517]

Q. Could those forms be re-used?

A. Well, a good deal of it could by tearing them all to pieces, you could salvage it and rebuild it, that is the only way.

Q. In other words, these forms are built right in place? A. Yes.

Q. And the steel forms were not built in place but were built ahead of time and moved into place?

A. They were complete forms built on a heavy jumbo that moved right into position.

(Testimony of Victor G. Hindmarsh.)

Q. Did you place the concrete consecutively in the tunnel after the cave-in?

A. No, we placed it wherever it was possible to get in a form and place it. Our object was to get it concreted as soon as possible; wherever we could get a section ready either with wooden forms or steel forms we poured it, and we made a good many jumps in between the concreting, that was afterwards closed in.

Q. In other words, you finally got it all concreted? A. Yes.

Q. Most of the concreting in the north tunnel was done back of the cave-in, was it not?

A. Up to about station 119+50, as I remember it, from just east of the cave-in up to station about 119+50, was all done from the south tunnel through the adit.

Q. In other words you got your materials in through the adit? A. Through the adit.

Q. Did you have to take the forms in in that way?

A. Yes, the forms all had to go in; I took the forms down from the west end of the cave and cut them down so that I could get them through this 4 by 6 adit and take them through and rebuild them again in the east end of the cave-in.

Q. Was that the means by which you got the concrete into the tunnel?

A. It was pumped with the pumpcrete via the pump line, from the pumpcrete gun we run through

(Testimony of Victor G. Hindmarsh.)

the adit, and then to wherever we were concreting in the south tunnel, some distance, I think the maximum distance was probably 750 or 800 feet. [1518]

Q. And all of the men had to go through that?

A. Everything had to go through the adit. That is the only place they could go through.

Q. At that time there was another adit made between the tunnels. Was that of any use to you?

A. No, that was not any use at all, on this work. It would serve if anything happened for the men to escape, but at the time that was driven it was driven as close as possible to the bench in the south tunnel and the south tunnel was considerably ahead of the north tunnel; it came out in one of the small drifts in the north tunnel.

Q. In other words, referring to Plaintiff's Exhibit No. 43, this is the second adit. A. Yes.

Q. At about Station 123?

A. Yes, that is right.

Q. And in that north tunnel that adit came into a drift? A. Yes.

Q. And consequently it was of no use in getting material back of the cave-in portion. A. Yes.

Q. You employed Mr. Larson to help you remove the cave-in?

A. Yes, that was one of the first things I really did after I took charge, was to employ Mr. Larson to remove the cave-in.

(Testimony of Victor G. Hindmarsh.)

Q. Did you do any resetting of timbers while you were engaged on this square setting?

A. I don't recall that I did. I do not think so.

Q. Now, when was the excavation resumed on the north tunnel following the cave-in, Mr. Hindmarsh?

A. In the north tunnel I think it was sometime in December, the latter part of December, 1935, as I remember it.

Q. And in the south tunnel?

A. In the south tunnel it was in November, somewhere around the 20th, or 23rd, or 24th of November.

Q. Of 1935? A. Yes.

Q. Had it taken up until that time to complete the concreting of these tunnels?

A. Yes, we had concreted at that time almost [1519] to the face in both tunnels when they started excavation.

Mr. Marrin: I have here, gentlemen, a copy of a letter from the Industrial Accident Commission to Six Companies authorizing the resumption of driving in the tunnel, which I should like to offer in evidence.

Mr. Wittschen: Was a copy of this letter sent to the District?

Mr. Marrin: It has noted on there copy to Joint Highway Commission #13.

Mr. Tinning: No objection.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: I offer that in evidence as Plaintiff's Exhibit 84.

The Court: It may be admitted and marked.

(The letter was marked "Plaintiff's Exhibit 84.")

Mr. Marrin: This is a letter on the letterhead of the Industrial Accident Commission, State Building.

PLAINTIFF'S EXHIBIT NO. 84

Industrial Accident Commission
State Building

San Francisco
November 22, 1935

The Six Companies,
Stock Exchange Bldg.,
San Francisco
Attention: S. Bechtel

Gentlemen:

It appearing from a report submitted to the Industrial Accident Commission under date of November 21, 1935, by L. K. Reinhardt, Supervising Construction Engineer of the said Commission that all sections of the Broadway Low Level Tunnel located in Alameda and Contra Costa Counties are free from the hazard of caving, and that the South tunnel is ready for driving, you are hereby notified that the Industrial Accident Commission herewith and hereby grants the Six Companies permission to resume

(Testimony of Victor G. Hindmarsh.)

the driving of the South Tunnel, pursuant to the Safety Laws of California.

Yours very truly,
(Signed) T. A. REARDON,
Chairman, Industrial Accident Commission.

FJB:RN
cc: Joint Highway Commission #13
1448 Webster St.,
Oakland, Calif.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's. Ex. No. 84. Filed May 4, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1520]

Mr. Marrin: Did you receive permission from the Industrial Accident Commission to resume driving of the north tunnel?

A. That was either received as an order or in a verbal order from Mr. Rhinehart; I don't remember which it was. He was in close contact with the tunnels all the time; and I collaborated with him considerably during the driving.

Q. That permission may have been oral?

A. May have been oral; I don't remember.

Q. Will you describe the method of excavation which you pursued when you resumed excavating in the tunnel, Mr. Hindmarsh; and, in doing so, you may, if you desire, refer to Plaintiff's Exhibit 42,

(Testimony of Victor G. Hindmarsh.)

which shows the different methods of excavation used in the tunnel?

A. In the south tunnel, when we started excavations, we used the three-drift system, starting from about Station 125, as I remember it, and using this system until we connected with the wall plate system that was driven——

Mr. Marrin: Pardon me. The witness is referring to a system designated as "I" in Plaintiff's Exhibit 42.

Mr. Tinning: When Mr. Hindmarsh says "the three-drift system," he was referring to "I"?

Mr. Marrin: Yes.

The Witness: Yes.

Mr. Marrin: Yes.

Mr. Tinning: There were three drifts on each side?

A. Three drifts on each side. We continued this three-drift system until we connected up with the wall plate drifts that were driven from the east end a distance of approximately 600 feet. After these drifts were fully excavated and we placed the permanent posts in these drifts, and also the "A" segment on both sides of the tunnel, and then the next operation we trapped the ring section which was let down into the three drifts and left that material there until such time as we could take the core out with the shovel. That [1521] all came out then at the same time, when the ring was completed.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Q. Now, that section which you have described as "I" is shown on the longitudinal section of the tunnel drawing on Plaintiff's Exhibit 42, and is marked "I", and runs from about what station? A. Station 124+80 to 131+20.

Q. At Station about 131+20, you intersected, or you contacted the wall plate drift which had been driven from the east end? A. That is right.

Q. Those are illustrated on this exhibit, by the diagram marked "K"? A. Marked "K."

Q. And from the point of intersection with the wall plate drifts from the east end, what system of excavation did you follow in the south tunnel?

A. We followed the wall plate system entirely then, which is shown on this Exhibit 42 as "G."

Q. And it shows on the longitudinal section, by the same color, marked "G"? A. Yes.

Q. What system of excavation did you follow in the north tunnel, Mr. Hindmarsh?

A. When they stopped excavation in the north tunnel, on the 21st of August, they were using——

Q. 21st of August, 1935?

A. 1935——they were using a two-drift method, a bottom drift on each side of the tunnel, and one drift immediately above that.

Q. That is illustrated by the diagram marked "F" in Plaintiff's Exhibit 42?

A. Yes, sir. The bottom drift, as I recollect, was about 100 feet. I completed the second drift that same distance the lower drift was completed to,

(Testimony of Victor G. Hindmarsh.)

and took the ring out for that distance, completing the timbering in full section up to that point; but, from there on, I changed the system into the wall plate method, which was the "H" section.

Q. As shown on Plaintiff's Exhibit 42?

A. As shown on Plaintiff's Exhibit 42; and continued with the "H" section then until we stopped on June 13th. [1522]

Q. Would you point out at about what station you started the excavation on the north tunnel, on Plaintiff's Exhibit 42?

A. It was approximately 122+11, where the bench was.

Q. And you followed the method known as "F" section to Station about 123+47? A. 123+47.

Q. From that point on——

A. From that point on, I followed the wall plate method, or the "H" section, as far as we went in the tunnel.

Q. What station was that, as far as you went in the tunnel.

A. That is just 131+40; about that.

The Court: That method, in blue on the south tunnel, is it just the same, or is it different?

A. Well, there is a little difference, your Honor, because the wall plate drifts were a little different. They were drifts that were driven from the east end, and they were much larger drifts than these drifts we pursued in the north tunnel.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Now, I have here some photographs showing the type "I" method of timbering in the south tunnel. There is a series of three photographs, which I would like to offer as one exhibit.

(The three photographs were marked "Plaintiff's Exhibit No. 85.")

[Set forth in the Book of Exhibits at page 304.]

Mr. Marrin: Q. Mr. Hindmarsh, referring to the first of these photographs, Plaintiff's Exhibit No. 85, which is marked showing type "I" method of timbering in south tunnel, will you state what that represents?

A. Well, this shows another section in the south tunnel where it was driven by the "I" method; it shows no wall plate. You will notice they are all individual sets. This was taken from the bench, looking back.

Q. In other words, this is looking toward the portal? A. Yes.

Mr. Tinning: Mr. Hindmarsh, so I may understand you, these were posts that you put in before you took out the core; you put them [1523] in as you went ahead?

A. Yes. Well, after the drifts were driven clear through, then I went in and set all the posts for the 600 feet, and the "A" segment.

Q. The "A" segment is the first part of the circle above the plumbpost?

A. That's right. It shows the concrete Jumbo back of the timber and the section being concreted when this picture was taken.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Referring to the second photograph, marked "Type 'I' Method Timbering South Tunnel," that shows the same method of timbering, does it?

A. Yes, that shows the same method of timbering.

Q. In the south tunnel which was done under your supervision? A. Yes.

Q. And referring to Type "I" excavation and timbering method, which is the third photograph of Exhibit 85——

A. This was in the south tunnel.

Q. Shows the posts?

A. Shows the posts and cross-bracing,—the first cross-bracing; it does not go high enough to show the second bracing.

Q. Well, there is another set?

A. The cross-bracing just above this.

Q. Those photographs are typical of the method of timbering that was carried on under the so-called Type "I" method? A. Yes.

The Court: You are coming this way, are you?

A. Well, no; going the other way—yes, the concrete is coming this way.

Mr. Marrin: This way is the portal into the tunnel?

A. The portal is that way; and that is the electric shovel, sitting right there.

Mr. Tinning: Could I ask Mr. Hindmarsh a question?

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Surely.

Mr. Tinning: In the first of these photographs, where we are [1524] looking back toward the portal of the tunnel, where do those braces appear when you get your concrete in? Did you take those out?

A. Took those out as we came ahead.

Q. So that between where the camera was and where the Jumbo was, you had taken out those cross-braces?

A. Yes. We were getting ready to move the Jumbo ahead. We had about 27 feet.

Q. You cleared those out in that space?

A. Yes.

Mr. Marrin: Q. Mr. Hindmarsh, referring further to the first photograph, on the right-hand side of the photograph, which would be the south side of the south tunnel, would you explain what this material is here?

A. That is the north side.

Q. Yes.

A. That is Gunite material, which is inserted between the timbers so as to strengthen the timbers.

The Court: Q. To strengthen it?

A. To strengthen it; makes them all work in unison. That was Gunite shot in between the timbers and cemented.

Mr. Marrin: Q. Will you explain why the Gunite was placed in the timbers, Mr. Hindmarsh?

A. Well, the Gunite was placed there to strengthen the timbers and give them more support,

(Testimony of Victor G. Hindmarsh.)

as we were having trouble with the timbers moving, and wanted to try to hold them until such time as we could get the concrete in to save trimming.

Q. Did you have trouble with the timbers moving in the part of the tunnel that you excavated?

A. Yes; I had considerable trouble with them; in fact, they would move practically constantly from the time it was excavated until you got the concrete in.

Q. What was the formation through which you excavated the tunnel?

A. It was mostly cherts; possibly 450 feet of Orindan.

Q. Over half of your excavation in the tunnel was in the cherts formation?

A. Yes; all the north tunnel was cherts, and about half the south tunnel was cherts. [1525]

Q. You found that after you set the timbers, they commenced moving in? A. Yes.

Q. How rapid was that movement?

A. Well, it varied considerably. The ground was very ununiform and spotty; and it was rapid at different points; some places your timber would start moving in probably the second or third day after it was set; and they would move in progressively, somewhere around one-eighth of an inch a day up to a quarter; sometimes about half an inch a day.

Q. Now, I have here a schematic photograph showing a cross-section of the lining and Guniting,

(Testimony of Victor G. Hindmarsh.)

which I would like to offer as Plaintiff's Exhibit next in order.

Mr. Tinning: In respect to this photograph, I gather that it is not a photograph of any actual condition? This is one I have seen before in a book.

Mr. Marrin: Yes.

Mr. Tinning: And it is really a diagram; and if it goes in for that purpose, to show something in connection with the theory of your case, there is no objection to it; but I don't want to have it understood this is a photograph of any particular condition. This was worked up to demonstrate a particular theory——

Mr. Marrin: Yes; I am putting it in to illustrate the method used in Guniting between the timbers.

Mr. Tinning: Well, if it is to illustrate a method, we will object to its introduction as not being a photograph of a condition of the tunnel.

Mr. Marrin: In other words, it is simply to have the witness explain and make clear the method used in Guniting; not necessarily illustrating the exact condition, because this is painted in here on this photograph; it has been superimposed on there in the nature of a drawing. [1526]

Mr. Tinning: Well, it is to demonstrate a method.

Mr. Marrin: That is all.

Mr. Tinning: It is not indicative of anything beyond what is shown here of the concrete form. It is something that has been worked up from a

(Testimony of Victor G. Hindmarsh.)

photograph by a draughtsman or a photographer, and is simply indicative of a proposed plan as a basis of some theory?

Mr. Marrin: Yes.

Mr. Tinning: And not an actual condition?

Mr. Marrin: Yes.

Mr. Tinning: With that understanding, I have no objection.

(The document was marked "Plaintiff's Exhibit No. 86.")

[Set forth in the Book of Exhibits at page 307.]

Mr. Marrin: Q. Mr. Hindmarsh, referring to Plaintiff's Exhibit No. 86, will you explain to the Court what that shows?

A. This is a photograph that has been retouched to show a method that we used in Guniting between the timbers, to strengthen the timbers. You will see these black lines are the timber sets and the grey is the Gunite that has been shot in between.

Q. Did that Gunite contain reinforcing steel that is placed——

A. There was reinforcing steel placed between each set of timbers, strengthening it with Gunite, as well as holding it in place while it was being shot in there. This section here shows in the permanent lining of the concrete.

Mr. Marrin: The witness is referring to the arch section,—the inside of the arch section. So this photograph shows the concrete forms in place?

A. Yes; that shows the steel forms that are in place, at the time.

(Testimony of Victor G. Hindmarsh.)

Mr. Tinning: The concrete is also put in by——

A. Yes; I think that is right.

Mr. Marrin: But the interior beyond the concrete, where the concrete is put in, is apparently a photograph of the concrete? [1527]

A. Yes.

Mr. Tinning: Looking through the steel forms?

A. Yes.

Mr. Marrin: That shows the method to put in additional support for the timbers?

A. Yes, that is right.

The Court: Now, I think it is about time for adjournment. We will take a recess until tomorrow morning at ten o'clock.

(Thereupon, an adjournment was taken until Thursday, May 5, 1938, at 10 o'clock a. m.) [1528]

Thursday, May 5, 1938;
10 o'Clock A. M.

VICTOR G. HINDMARSH,

Direct Examination (Continued)

Mr. Marrin: Q. Mr. Hindmarsh, yesterday I asked you this question, which appears at page 1110 of the transcript:

"Q. Did you do any resetting of timbers while you were engaged on this square setting?

A. I don't recall that I did. I do not think so."

(Testimony of Victor G. Hindmarsh.)

In that answer, you referred, did you, to resetting of the timbers while you were doing the square setting? A. That's right.

Q. Did you do any resetting of timbers after the square setting was done?

A. Oh, yes. We reset lots of the timbers. The timbers, where the square sets were placed,—that was where most all of the ground moved, to a certain degree; and, I believe, had to be trimmed or moved; and, where it was necessary to move it, why, it was necessary to have the square sets in; and the worst place that the timbers were moved was the last place that was excavated, right up next to the face. There were timbers there,—some of the arch timbers,—segments, that moved in as much as 15 inches. Some of the posts moved in 8 or 10 inches, and that could not be trimmed,—that much off; that had to be moved back.

Mr. Tinning: Q. Mr. Hindmarsh, what station do you refer to?

A. Between station 121+50 and 122+11.

Q. That was in the north tunnel? A. Yes.

Mr. Marrin: Q. One of the purposes of the square setting was to hold the timbers while you were moving them? A. Yes, that's right.

Q. How many feet of these tunnels were excavated under your supervision, Mr. Hindmarsh?

A. About 800 feet in the north tunnel, and about 1100 feet in the south tunnel. [1529]

(Testimony of Victor G. Hindmarsh.)

Q. Would you describe the character of the ground encountered by you in excavating the tunnels?

A. Well, the cherts: all the north tunnel was in cherts; it was very spotty and ununiform, and the chert laminations had been cut by an intrusion of some mineral substance of some kind; I don't know what the geologist called it; that would cut across the laminations, in varied conditions and positions, in some places only 2 inches thick, and some places it would come in kidneys 5 or 6 feet thick; that would cut all the laminations of the cherts and take the stability away from it entirely. When we got into the Orindan, it was not as bad as the cherts; we did not have as much trouble with it as we did on the cherts, although it moved continuously from the time we put the timbers in until we got the concrete in.

Q. The ground was moving? A. Yes.

Q. About what rate did it move?

A. Well, it would move from an eighth of an inch a day to half an inch a day. Then probably it would be spotty; but some places moved faster than others. In the north tunnel, along in January, the timbers began to move rapidly, and it was necessary to stop the driving in order to catch up to the concrete so there would not be any interference, and we could get the concrete up next to the face in order to hold it; I was not able to hold the timbers.

Q. Exerted pressure on the timbers?

(Testimony of Victor G. Hindmarsh.)

A. Yes.

Q. How far outside of the neat concrete of the concrete lining did you place the timbers?

A. There was a minimum of 3 inches; up to some places in the arch, as much as 5 inches.

Q. You testified, yesterday, that in an attempt to reinforce the timbers you placed Gunite and reinforcing steel between them?

A. That's right.

Q. Did it stop the movement of the timbers?

A. Well, it seemed to in some places; and there were other places that it did not; and some of the Gunite had moved in when we came to the concrete, and we [1530] had to chip that off, as much as 3 or 4 inches.

Q. How close were you keeping the concrete up behind the excavation?

A. Probably a maximum of 125 feet. I tried to keep it there, and keep working, at the time, between there and the face. There were some places, I think, where I got as close as 70 or 75 feet to the face where I had bad ground.

Q. How long would it be, after a given section was excavated, before the concrete lining was placed?

A. Well, it would be—when it was back 125 feet, it would be approximately 10 days.

Q. During that period of time, the timbers would move in to such an extent they would have to be trimmed?

(Testimony of Victor G. Hindmarsh.)

A. In some places it moved in. We did not do but very little trimming when we got the concrete up close. It would just above move in the distance it was set up beyond the concrete line. However, there were places where it got in before we could get the concrete in, and we would have to trim it off.

Q. Did those same conditions prevail through all the ground which was excavated under your supervision? A. Yes, it did.

Q. But the cherts section was worse than the Orindan?

A. The cherts was more treachereous.

Q. Did a cave-in occur in the tunnel on February 22, 1936? A. Yes.

Q. In which tunnel? A. The north tunnel.

Q. At about what time of day?

A. Early in the morning; about 2:30; between 2:30 and 3 o'clock in the morning.

Q. On which side of the north tunnel?

A. The cave-in started on the south side of the north tunnel, just above the wall plate line.

Q. At about what station?

A. About 126+50.

Q. How long had the timbers been placed at the point where the cave-in occurred?

A. The ring timbers had been set about 10 days —10 or 11 days; and the posts had been set about 4 or 5 days.

Q. The ring timbers were set in the drifts ahead of the posts? A. Yes. [1531]

(Testimony of Victor G. Hindmarsh.)

Q. Did you state how many feet back from the face the cave-in occurred? A. About 45 feet.

Q. Were you present on the work at the time of the cave-in? A. No; I was not.

Q. How long prior to that had you been present?

A. Oh, I was in the tunnel about 8 or 9 o'clock that night before the cave-in,—probably 6 or 7 hours before the cave-in.

Q. How close up was the concrete to the face at that point?

A. It was about 125 feet, as I remember it now; that is about the way we kept it.

Q. In other words, the cave-in occurred between the place where the concrete lining ended and the face of the excavation which was about 125 feet ahead? A. Yes.

Q. Had you inspected the timbers in the north tunnel the day before the cave-in?

A. Yes. I inspected the timbers practically every day. I was in the tunnel constantly from early in the morning until 9 or 10 o'clock at night.

Q. Did they appear to be in good shape?

A. There was nothing there that—I did not see anything at all that would give any sign of any weakness.

Q. Were you in charge of the excavation at the time you drove through this particular place where this cave-in occurred. A. Yes.

Q. Did you observe the character of the ground, at the point at which the cave-in later occurred, at the time you excavated through it?

(Testimony of Victor G. Hindmarsh.)

A. Yes. We observed the ground. We had one of those intrusions or gouges that I spoke about, which was running across the tunnel on a diagonal; it started in on the north side of the north tunnel and went diagonally across the tunnel; and it varied, starting almost only 2 or 3 inches in thickness, as I remember it, at the north side; and then it widened out in the middle of the tunnel, [1532] and went diagonally across, and went out of the tunnel just about the wall plate line; and I would say it was probably a couple of feet thick there—maybe 2 or 3 feet thick at that point; and when we drove the drift there, we observed it; but it did not concern me very much; I did not pay any more attention to it, because it was well taken care of and well packed, and the gouge seemed to be considerably harder than the ones that we had just gone through back there. I did not think it would give us any trouble.

Q. You had gone through similar gouges before?

A. Yes; lots of them.

Q. What was the size of the timbers used at this particular point?

A. 12 by 12's and 14 by 14's.

Q. How soon after the cave-in occurred did you arrive at the site of the work?

A. I guess about 45 minutes.

Q. That was about 3 o'clock in the morning of the 22nd? A. Yes.

Q. Will you describe, generally, the appearance of the cave-in, at the time you arrived at the work?

(Testimony of Victor G. Hindmarsh.)

A. Well, there were about 6 or 8 sets of timbers that had fallen down, and the roof had caved, from the south side above the wall plate, and enough material had come in to cover up—to practically cover our air shovel that we had standing there working; and considerable of the timbers fell in beyond that, and all the roof timber was down on the ground; and there was one man who was caught in this timber; and they were working then to get that man free,—to dislodge him from the timbers, when I arrived; and we were successful in getting the man out, with very minor injuries; but no one was hurt; but the material then started to cave in, and kept on dropping and caving, from the south side of the tunnel, and gradually working over the roof of the tunnel; and, in order to catch it up and keep the cave from running away, further into the timbered tunnel, I started to bulkhead at the toe of the cave; and I was able to build a bulkhead as fast as the [1533] cave came in.

Mr. Tinning: Q. Mr. Hindmarsh, was that bulkhead on the west end of the cave?

A. West end of the cave; the toe of the cave; but I was just about able to keep that bulkhead ahead of the caving; it would ave and roll, and it kept falling on the bulkhead; and that night the tunnel was full, so far as we could see; but it continued to cave all that night; you could hear the big lumps caving and rolling back into the tunnel.

Q. In other words, after the first rush of ma-

(Testimony of Victor G. Hindmarsh.)

terial came in, the rest of the material came in gradually?

A. Spasmodically, yes; just kept dropping; every few minutes there would be a boulder drop out of the roof.

Q. Did it eventually fill the tunnel?

A. Yes, it eventually filled the tunnel, and filled it from the bulkhead to the excavated face of the tunnel.

Q. It would be a distance of about how far?

A. Oh, about 60 or 70 feet.

Q. Were the timbers broken?

A. No. After we took the cave out from the westerly end, the timbers were not broken; they were simply pushed out, just about the wall plate line; and that cave came in, when the kidneys came in, it started on the ring and the "A" segment there, and evidently pushed that out, and that let the rest of the ring down.

Q. Was this the system you were using?

A. No. I was using the wall plate system,—that "H" system.

Q. This segment in there? A. Yes.

Q. Above the wall plate?

The Court: Q. On the south side?

A. On the south side of the tunnel, yes. The tunnel runs east and west.

Q. And it was on the south side?

A. Yes. [1534]

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: I have here four photographs taken at the time of the cave-in; and I would like to offer them as plaintiff's exhibit next in order.

(The four photographs were marked "Plaintiff's Exhibit No. 87.")

[Set forth in the Book of Exhibits at page 308.]

Mr. Marrin: Q. Mr. Hindmarsh, I show you a photograph which is part of Plaintiff's Exhibit No. 87—I believe I will mark this No. 1.

Mr. Tinning: "87-1."

Mr. Marrin: Q. Will you explain to the Court what that shows?

A. That shows that gouge that I was speaking about; and this is the south side of the tunnel, just above the wall plate line there, and running up into the roof of the tunnel. You could readily see, in this picture, how that gouge varied; it was taken from the Jumbo,—right on top of the Jumbo, just back of the cave-in, west of the cave-in, looking in.

Mr. Tinning: Q. Mr. Hindmarsh, could you tell us about when these photographs were taken; about what hour, approximately?

A. I believe that was probably taken around, as I remember it now, 6 or 7 o'clock in the morning. I am not sure. There was so much confusion around there at that time, and I know the photographer was there, taking them. I don't know what time it was; but I think it was around about that time.

Mr. Marrin: Q. After the cave-in, did it develop that this gouge widened out, outside of the tunnel?

(Testimony of Victor G. Hindmarsh.)

A. Yes; it widened out considerably. After you got outside the skin face of the tunnel,—the lining of the tunnel,—it widened out into a large kidney; it worked up back there on the face of the tunnel, and, when we went through there taking the cave out, you could see we had some large boulders of this gouged material that was right up in the roof; that was right up there, and left there.

Q. I show you a photograph marked "2"——

[1535]

Mr. Tinning: "Plaintiff's Exhibit 87-2."

Mr. Marrin: Q. What does that show?

A. This shows the condition of the tunnel when I arrived. You can see the cave-in from up here. This shows the condition of the tunnel when I arrived there, showing that the tunnel had caved in just above the wall plate line and partly buried our air shovel with which we were excavating at the time. Just to the north of the tunnel was where the men were trapped in the timber that fell down from the roof. The roof had not caved in, but this part of the tunnel—the roof was bare there; there was timber that held it up, which had not yet caved, and which caved afterwards.

The Court: Q. Do I understand there was no roof on the tunnel where it caved?

A. The timber had all come down, your Honor, and left the rock bare there for the time being; and then started dropping and weakened and was dropping down.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Q. There had been timber there?

A. Yes; it was all timbered solid.

Q. I show you two more, marked "3." Will you explain them to the Court?

A. This is a little later picture, taken—there is the shovel there, after the cave-in had come down, and a little more completely covering the shovel. There is the shovel; and here it is here.

The Court: Q. That would be beyond——

A. Yes; the cave-in was enough to cover the shovel completely there, and went back in on the other side. That picture shows the cross-bracing that we had in at the time of the cave-in.

Mr. Marrin: Q. Picture No. 4 of Plaintiff's Exhibit 87 shows the commencement of the bulkheading?

A. That shows the commencement of the bulkheading. This bulkhead was run practically vertically, clear to the roof, to support the other timbers, so the cave-in would not run back into the tunnel.

[1536]

Q. Eventually, the caved material filled all the space back of the bulkhead?

A. Yes; all the way in, as I remember, about 70 feet.

Mr. Tinning: May I ask a question?

Mr. Marrin: Surely.

Mr. Tinning: Q. With respect to Plaintiff's Exhibit 87-2, which you said shows the condition at the time you arrived: was there a photographer there by that time or after that time?

(Testimony of Victor G. Hindmarsh.)

A. Yes, there was a photographer there. I think it was the Tribune photographer who was there at the time I got there. [1537]

Q. Was the work stopped?

A. The work was stopped in both tunnels immediately by the order of the Industrial Accident Commission.

Mr. Marrin: I have here a copy of the order of Mr. Reinhardt. I have the original that was sent by the Industrial Accident Commission to Six Companies of California, which I will offer in evidence as Plaintiff's Exhibit next in order.

(The document was marked "Plaintiff's Exhibit 88.")

Mr. Marrin: This order reads as follows:

PLAINTIFF'S EXHIBIT No. 88

Department of Industrial Relations
Industrial Accident Commission
Of the State of California

San Francisco Office	Los Angeles Office
State Building	State Building

Notice to Employer to Remedy Unsafe Conditions of Place of Employment

Legal name, Six Companies of Calif.

Office address, Stock Exchange Bldg., S. F.

Inspection made at (Place of employment) Broadway Low Level Tunnel.

(Testimony of Victor G. Hindmarsh.)

Address for mail, S. F.

Supt., Hindmarsh. No. of employees, 600.

Ins. carrier, Ind. Ind. Ex. Date, 2/22/36.

Safety Requirements

1. Due to the character of the ground through which the Broadway Low Level tunnels are being driven, you are hereby ordered to stop further driving of both tunnels until such time as future plans for driving are approved by the Industrial Accident Commission.

Recommendations explained to Mr. Hindmarsh.

Inspected by Reinhardt.

Your attention is called to Section 402(c) of the Penal Code of California, Chapters 332, 333 and 334, Laws of 1921, and Sections 34, 35, 36, 48, 49 and 50 of the Workmen's Compensation, Insurance and Safety Act of 1917 (Chapter 586, Laws of 1917), which render the maintenance of an unsafe place of employment a misdemeanor, and authorize the Industrial Accident Commission to enforce said laws.

Form 200, 95154 5-32 15M.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 88. Filed May 5, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Q. Mr. Hindmarsh, was the original order delivered to you by Mr. Reinhardt? A. Yes.

(Testimony of Victor G. Hindmarsh.)

Q. That is his handwriting?

A. Yes, that is his handwriting.

Mr. Marrin: I have here another order of the Industrial Accident Commission dated February 29, 1936, which I will offer [1538] in evidence as Plaintiff's Exhibit next in order.

(The document was marked "Plaintiff's Exhibit 89.")

The order reads as follows:

PLAINTIFF'S EXHIBIT No. 89

State of California
Department of Industrial Relations
Industrial Accident Commission
State Building
San Francisco

T. A. Reardon, Chairman
Meredith P. Synder
Frank C. MacDonald
Members
Frank J. Burke, Secretary

Order to Correct Unsafe Conditions or to Show Cause

February 29, 1936.

To Six Companies of California,
Field Office,
Berkeley, Calif.

You Are Hereby Notified that an inspection of your Broadway Low Level Tunnel, located at Oakland, California, made on the 22nd and 28th

(Testimony of Victor G. Hindmarsh.)

day of February, 1936, by L. K. Reinhardt, Engineer for the Industrial Accident Commission, shows the existence of unsafe conditions which must be corrected as hereinafter appears. These unsafe conditions of your place of employment constitute a menace to the lives or safety of any person or persons employed thereabout and such places of employment, machines, devices or apparatus, are being operated or used in violation of the Workmen's Compensation, Insurance and Safety Laws of the State of California, and the Safety Rules and Orders of the Industrial Accident Commission of the State of California;

Now, Therefore, You Are Hereby Directed to comply with the requirements hereinafter set forth, and to notify this Commission in writing to that effect on or before March 11, 1936, or to show cause, if any you have, in writing, on or before said date, to this Commission at its office above noted, why an order should not be made forthwith by this Commission, adopting said requirements as a special safety order or orders of this Commission, prohibiting the use of said equipment in its unsafe condition and directing the attachment to said equipment of a notice to such effect. If you desire an oral hearing before this Commission upon said requirements, in place of the hearing in writing provided above, you are hereby directed to file a

(Testimony of Victor G. Hindmarsh.)

request in writing with the Commission at its office above noted, for such oral hearing before said date.

The requirements for the correction of the aforesaid unsafe conditions appear on the attached sheets.

T. A. REARDON,
Chairman,
Ind. Accident Com.
(C. H. FRY),
Superintendent of Safety.

1. Due to the character of the ground through which the Broadway Low Level Tunnels are being driven, you are hereby ordered to stop further driving of both tunnels until such time as future plans for driving are approved by the Industrial Accident Commission.

2. By reason of the severe construction hazards involved in proceeding under the present design of the tunnel, you are ordered to appoint a committee consisting of a representative of the Six Companies of California, the Joint Highway District and other interested parties, to present a future program before proceeding further with the job.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 89. Filed May 5, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1539]

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: I think that the District received an identical order, did they not?

Mr. Tinning: I believe that is correct, I do not seem to find it chronologically.

Mr. Marrin: Will it be stipulated, subject to check, that the District was sent a copy of that order?

Mr. Tinning: Yes, we will stipulate that the District received a copy of it, if I find that is correct.

Mr. Marrin: Q. Mr. Hindmarsh, what was done by you after receiving these orders?

A. Well, the tunnel was shut down completely, we were not working any further, and I talked to Mr. Reinhardt to ascertain what would be necessary, and what kind of a program [1540] or plan would be acceptable to the Commission so that we could make up a proposed plan and submit it to him on the meeting that they called for.

Mr. Wittschen: Mr. Marrin, I did not object to the question asking what he did, but if he is going to say as to what Mr. Reinhardt said I think that is objectionable.

Mr. Marrin: Yes, I think that is beyond the question.

Q. So far as the work was concerned, Mr. Hindmarsh, no further work was carried on for the time being? A. No.

Q. The work was shut down?

A. Shut down.

(Testimony of Victor G. Hindmarsh.)

Q. This order applied to the south tunnel as well as the north tunnel? A. Both tunnels.

Mr. Marrin: I have here another order of the Industrial Accident Commission, addressed to the Six Companies of California, dated March 16, 1936, and I will offer that in evidence as Plaintiff's Exhibit next in order.

(The document was marked "Plaintiff's Exhibit 90.")

It reads as follows:

PLAINTIFF'S EXHIBIT No. 90

Industrial Accident Commission
State Building
San Francisco

March 16, 1936.

Six Companies of California,
1522 Latham Square Building,
Oakland, California.

Gentlemen:

You are hereby advised that the order of this Commission to stop further driving of the Broadway Low Level Tunnels as dated February 29, 1936, is modified to the following extent:

1. Driving may be resumed in the upgrade tunnel by the contractor by following a method presented by the contractor and approved by the engineers of this Commission, which method consists in general of installing 8"x10" timber

(Testimony of Victor G. Hindmarsh.)

spreaders in each timber set and extending across the tunnel approximately 16′ and 27′ respectively above the finished floor of the tunnel; further by installing excavation equipment which may be operated beneath the lower spreader without interfering with it.

Spreaders are to be installed as soon as the ground between each timber set is excavated. Two longitudinal timbers, 2″x12″, are to be fastened to the spreaders to prevent bowing.

2. When driving in the upgrade tunnel reaches the wall plate drifts, the contractor shall present a plan for future driving for approval by the Commission.

3. An electrically operated shovel will be permitted.

4. A record shall be kept by the Fire Bosses on each shift of all overbreaks above the wall plate line and notations made whether the overbreak was in running ground and then lagged or if the overbreak was packed with timbering. If the ground warrants guniting, the gunite ring shall be constructed.

5. The core in the tunnel section shall be benched sufficiently to provide safety against caving ground to the workmen drilling lifter or similar holes.

6. The caved-in section of the downgrade tunnel may be excavated and concreted in a manner similar to that employed in doing like

(Testimony of Victor G. Hindmarsh.)

work from the caved-in section of August 28, 1935.

With the exceptions above specified, the original order of this Commission made on February 29, 1936, is still in effect and in no event shall driving in the downgrade tunnel be resumed until plans for future driving in that tunnel are approved by this Commission and said original order is hereby extended until such plans are presented and approved by this Commission.

Very truly yours,
(Signed) T. A. REARDON,
(Signed) FRANK C. MacDONALD,
Members,
Industrial Accident
Commission.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 90. Filed May 5, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1541]

Q. Now, when was the driving resumed in the south tunnel, Mr. Hindmarsh?

A. I think it was on the 23rd of March.

Q. This order is dated March 16. Would you state why you delayed resuming driving until March 23rd?

A. When the Industrial Accident Commission ordered us to put these spreaders below, the present equipment that we were using for excavating the

(Testimony of Victor G. Hindmarsh.)

tunnel would not work, the shovel was too high and would interfere. We had to work under these timbers, and our shovel was too large, it would not work under the timbers without knocking them out, and they would not allow us to use it, so we had to find a shovel then that would work under that 16 feet, and there was only one on this western coast, which was down on the Metropolitan Tunnel, built specially for the Metropolitan Tunnel, and we immediately bought that shovel and had it shipped up here, and that was as quick as we could possibly get this shovel out and get the other one in. That delayed our work that length of time.

Q. That required a specially-built shovel to work under the timbers?

A. Specially built, of any size at all, that was a yard shovel, to handle that class of material; we needed it especially in the Orindan, and there was only one shovel of that size on the coast, and there were only two other ones made, and they were busy in the East.

Q. Mr. Hindmarsh, will you point out where that slide was on the longitudinal sketch of the section shown on Plaintiff's Exhibit 42?

A. It was about station 126+50, as I remember it, right there.

Q. That was the center of the slide, 126+50?

A. That was about the center of the slide.

Q. How far did it extend either side of that point?

(Testimony of Victor G. Hindmarsh.)

A. It extended possibly 30 or 40 feet each way.

Mr. Marrin: Mr. Tinning, I am not sure that our stipulation [1543] covered that prior exhibit. I think I said you received a copy of it. As a matter of fact, you received an identical original?

Mr. Tinning: We received an order, as I remember it, addressed by the Commission to the District. In other words, I think it is very much the same, they sent one to the District as the owner and one to you as the contractor.

Mr. Marrin: How about this last letter?

Mr. Tinning: They received a similar letter, also.

Mr. Marrin: I have here a copy of an order issued by Mr. Reinhardt, of the Industrial Accident Commission to the Six Companies of California, which I would like to offer in evidence as Plaintiff's Exhibit next in order.

(The document was marked "Plaintiff's Exhibit 91.")

This order reads as follows:

(Testimony of Victor G. Hindmarsh.)

PLAINTIFF'S EXHIBIT No. 91

Industrial Accident Commission
of the State of California

San Francisco Office
State Building

Notice to Employer to Remedy Unsafe Conditions of Place of Employment

Legal name: Six Companies.

Office address: Latham Square Bldg., Oakland.

Inspection made at: Broadway Tunnel.

Address for mail: Latham Square Bldg.

Supt.: Mr. Hindmarsh.

No. of employees: 300.

Ins. carrier: Ind. Ind. Ex. Date 3/30/36.

Safety Requirements

1. Slope face of core in South Tunnel to approx. 45°

2. Provide jump sets in both top drifts in North Tunnel thro caved section.

3. Block up broken segments over tunnel drifts.

Complied with 3/31

L. K. R.

Recommendations explained to Mr. Whitmire.

Inspected by Reinhardt.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 91. Filed May 5, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [1544]

(Testimony of Victor G. Hindmarsh.)

Mr. Wittschen: You will stipulate we did not receive a copy of that order?

Mr. Marrin: I think you did not receive a copy of that.

Q. This order required you to keep the face of the core on a 45° angle, did it not? A. Yes.

The Court: What do you mean by that?

A. On a 1 to 1 slope, in other words, one foot down and one foot out.

The Court: I understand now.

Mr. Marrin: Q. Did Mr. Reinhardt tell you why he was making that requirement?

Mr. Wittschen: Just a moment. That is objected to as immaterial, irrelevant, and incompetent, and calling for hearsay testimony, and not binding on the district.

Mr. Tinning: The order is the final evidence.

Mr. Wittschen: The order, as Mr. Tinning says, is the final evidence, and the contractor, by the plans and specifications, agreed to be bound by all of the rulings of the Industrial Accident Commission, and what Mr. Reinhardt told him is not binding on the District.

The Court: Mr. Reinhardt is a public official, is he not?

Mr. Wittschen: He is an inspector for the Industrial Accident Commission.

The Court: I will allow it subject to the motion to strike and over the objection.

Mr. Wittschen: Note an exception.

(Testimony of Victor G. Hindmarsh.)

A. Read the question.

The Court: A 45° angle.

A. To make a safer condition so that the material on the upper part of the core would not cave down on to the men that were working underneath.

Mr. Marrin: Q. Did that requirement, Mr. Hindmarsh, in any way [1545] delay the work?

Mr. Wittschen: Objected to as immaterial.

The Court: I will allow it.

Mr. Wittschen: Exception.

A. It slowed up the work because it was necessary to keep another crew of men up on the top bench sloping this ground back; a 45° slope is a pretty heavy slope to carry on any tunnel, and it makes it hard to get in your timber, and it makes it very difficult to do—all of the top bank has practically to be handled by hand, the shovel cannot reach it.

Q. It makes the work more expensive?

A. It pretty nearly doubles your crew on the bench.

The Court: Q. In any event, it was only 70 or 80 feet?

A. No, this was in the other tunnel. He was not talking about the slide, this was driving ahead.

Mr. Tinning: This was excavation.

Mr. Marrin: These orders applied to the entire balance of the excavation in both tunnels.

I have here an order of the Industrial Accident Commission dated April 16, 1936, addressed to Six

(Testimony of Victor G. Hindmarsh.)

Companies of California, which I will offer in evidence as Plaintiff's Exhibit next in order; and inasmuch as that refers to a diagram I should like at this time to offer in evidence a copy of the diagram. They may be marked as one exhibit, the letter of April 16 and the diagram which was numbered 119.

(The documents were marked "Plaintiff's Exhibit 92.")

[Set forth in the Book of Exhibits at page 313.]

[1546]

Now, there are a number of matters in there which I think may bear explanation so that your Honor will understand it.

Mr. Wittschen: We did not get a copy of that drawing.

Mr. Marrin: Didn't you get a copy of it?

Mr. Tinning: We have got it here, but this drawing which is introduced as a part of your Exhibit No. 92 was sent by the Six Companies to the Industrial Accident Commission; it was something prepared, apparently, by Six Companies, and that was not submitted to the District, and I am advised that this is the first time [1548] the District has ever seen the diagram.

Mr. Marrin: Did you get the letter?

Mr. Tinning: We got the letter.

Mr. Marrin: In other words, you received the letter from the Commission dated April 16, 1936, addressed to the District, which was identical with the letter received by the Six Companies?

(Testimony of Victor G. Hindmarsh.)

Mr. Wittschen: We received a copy of the letter addressed to you.

Mr. Tinning: I think it is addressed to the District, but the point is you have introduced this as one exhibit, and I wanted the record to be clear that the diagram which forms a part of Plaintiff's Exhibit 92, as you have introduced it, was not something that the Industrial Accident Commission sent to us as a plan for doing this work; it was taken to the Industrial Accident Commission by the Six Companies.

Mr. Marrin: However, with the knowledge of the District Engineer, was it not?

Mr. Tinning: It was discussed with the District Engineer, but the plan, itself, was something that was not received by the District, and it was something that went from the Six Companies to the Industrial Accident Commission.

Mr. Marrin: That is correct.

The Court: Did the District Engineer have knowledge of it, did he know about it?

Mr. Tinning: Yes.

The Court: The drawing, as well?

Mr. Tinning: No, we did not have knowledge of the plan or drawing.

The Court: In any event, you are not taken by surprise by this drawing?

Mr. Tinning: No, we are not misled. [1549]

The Court: Proceed.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Q. Will you explain to his Honor, —in the first place this letter refers on the drawing to 8 x 10 timber spreaders.

A. That is these spreaders across here, these are 8 by 10. When we had the other shovel in the tunnel we were using top spreaders and top hangers, and then when we had the cave-in the Industrial Accident Commission made us put these additional spreaders across at a lower level.

Q. And it was because of the lower spreaders that the shovel and equipment which you had could not operate?

A. Yes, the shovel would not work under these spreaders, which had to be every six feet across there.

Q. And the hangers which are referred to are these 2 by 12 that go up and down vertically?

A. 2 by 12 spiked to the top spreader and to the bottom spreader, and the horizontal timbers are spiked on the top of the spreader, one on each side, to keep the timbers from bowing.

Q. Now, referring to the diagram at the bottom of the drawing, No. 119, will you explain to the Court what batter posts are, as shown on there?

A. These posts show batter under the wall plate, they are the ones that they refer to. The reason those were used was in keeping the bench on a slope —this diagram only shows about a 20° slope, and we had to keep on about a 45°, and in order to cut down this distance from where the wall plate came

(Testimony of Victor G. Hindmarsh.)

out of the wall plate drift to this post, we tried to put in a batter post.

The Court: Indicate it on there generally.

A. This is the wrong section; looking from the side you see this post, this is the post, only it is inclined the other way. This stuff comes down here at a 45° angle; your toe is away out here in the wall plate drift at this point, and there is so much dis-

[1550] tance there that we run a batter post to shorten that unsupported wall plate.

Q. When the batter posts were installed were they thereafter removed?

A. No, as I remember they were not removed; there was a plumb post put in.

Q. The plumb posts were put in alongside of the batter posts? A. Yes.

Q. Was the balance of the tunnel excavated while you were on the work, excavated according to this method? A. Yes, they were.

Q. When was the excavation resumed in the north tunnel? A. I think on May 9.

The Court: 1936? A. Yes.

Q. And the cave-in was what date?

A. February 22.

The Court: March, April, May.

Mr. Marrin: That was sometime after the date of this order.

A. Yes, that order was issued right after we had the cave-in concreted, but we still had to clean the cave-in out, get up to the face of the material in

(Testimony of Victor G. Hindmarsh.)

the tunnel before we could go to work. There was quite a lot of debris to clean out after we received that order.

Q. You heard Mr. Larson explain the method of removal of the cave-in of 1935? A. Yes.

Q. And this cave-in was removed in substantially the same manner?

A. Well, the details of it were a little different, but I would say it was substantially the same thing.

Q. How did you remove it?

A. We ran a wall plate—the first tunnel was, the first drift through was a bottom drift on the first cave-in, and on this one we ran the wall plate drift through first and then took the distance from the wall plate down to the floor of the tunnel, where the concreted side wall was caved, and drove spiling down on 6-foot sections and took that out and put the posts [1551]in so we could get our concrete forms in clear up to the full width of the side walls, and that was carried on—the excavation being taken out alongside of the plumb posts was done in about 6-foot sections, with spiling driven all the way around on three sides of it. [1552]

Mr. Marrin: Q. If I understood you correctly, in referring to Diagram "H" on Plaintiff's Exhibit 42, you drove the wall plate through first?

A. Yes.

Q. Then that was all timbered?

A. Yes, that was all timbered.

(Testimony of Victor G. Hindmarsh.)

Q. Then, from that point, you drove spiling down to the bottom grade of the tunnel?

A. Yes.

Q. Then did you take this material out?

A. We drove spiling on both sides of that long drift there.

Q. Down this side and down the inner side?

A. Down this side and also on this side.

Q. Then you took the material out?

A. Then we took the material out, and concreted the side wall plate, yes, for possibly, I would say, 4 or 5 feet above the wall plate.

Mr. Tinning: How high would that be, approximately, from the floor of the tunnel?

A. Oh, I think that was about 19 feet, if I remember right, Mr. Tinning.

Mr. Marrin: Q. Did you take out the drift all the way through the excavation before you concreted? A. Yes.

Q. You opened this entire——

A. Opened this entire drift up.

Q. On both sides?

A. On both sides of the tunnel.

Q. Then placed the concrete in there?

A. That's right.

Q. After you did that, what did you do?

A. Then we started in from the east side of the drift, and drove spiling around the ring and took the ring out from the east end towards the west. The reason for that was: when the tunnel caved in, sev-

(Testimony of Victor G. Hindmarsh.)

eral sets of the timbers right next to—adjacent to the slide, had come down about a foot and a half, so they intruded into the concrete.

Q. That was toward the portal from the slide?

A. Toward the portal from the slide.

Q. That was on the west end?

A. On the west end; and made it [1553] almost impossible to get up high enough to still remove these timbers and drive lagging or spiling for taking out the rings. On the east end, it was all clear, because that timber had not been disturbed, so we were able to get in and start that spiling from that end, and drove spiling all the way around the circle, and took that circle out and put these timbers in; completed the timbers which were then down here, just back of the concrete.

Q. In other words, you drove your drift through, and then you started back out with your rings?

A. That is right.

Q. And you concreted the ring as you came out; or did you complete the ring, first?

A. No; we completed the ring, and then concreted it.

The Court: We will take a recess.

(Recess)

Mr. Marrin: Q. Mr. Hindmarsh, you stated, before the recess, that no work was carried on following the cave-in. Do you want to correct your testimony in that respect?

(Testimony of Victor G. Hindmarsh.)

A. Yes; I had forgotten, at the moment, that our concrete in the south tunnel was probably 250 feet back of the core, due to the fact we were changing our steel forms from modified section to standard section; and, inasmuch as we had that much space that was not concreted, we were allowed to continue the concreting up to the face of the tunnel.

Q. In the south tunnel?

A. In the south tunnel.

Q. But you did not place any concrete in the north tunnel? A. No.

Q. How long did it take to remove the cave-in material from the north tunnel?

A. From the time we were shut down, and we were able to resume operations again, it was about 75 days.

Q. The date of this letter of April 16, 1936: was that the date you completed concreting in the caved in section in the north tunnel?

A. As I recall it, that was just about the time we finished [1554] the concreting.

Q. Thereafter, you had to remove the core?

A. Yes, we had to wait a certain length of time for the concrete to set after it was concreted. I have forgotten just about how long—Probably 10 or 11 days.

Q. You could not remove the core until after that time? A. No.

Q. So, you were not in a position to resume excavation on the face until about May 9, 1936?

(Testimony of Victor G. Hindmarsh.)

A. About May 9th was as soon as we could do it.

Q. What did you do for a shovel in that tunnel?

A. Well, I was unable to secure any more electric shovels of the type that would work under the spreaders; but I had a little three-eighths yard air shovel that we had purchased to take out the former slide, and that had worked in between the concrete walls; and I used that as best I could; it was too small to handle the work and make progress, but it was the only thing we could get.

Q. You could not get another shovel similar to that which you used in the south tunnel?

A. No; there was not any more shovels available, and I contacted the manufacturer, as I remember it, to find out how soon we could get a new one,—which was about four or five months for delivery.

Q. Several places in your testimony, Mr. Hindmarsh, you used the term "timber intrusion." Would you explain what you mean by that?

A. What I mean by that is the amount the timber had encroached into the neat concrete line.

Q. For instance.

The Court: Q. It had moved into the area where the concrete was to be placed; is that it?

A. Yes.

Mr. Marrin: May I have Defendant's Exhibit G-4 and H-4?

Q. Mr. Hindmarsh, I refer you to the photograph whichs are [1555] Defendant's Exhibits H-4

(Testimony of Victor G. Hindmarsh.)

and G-4, consisting of four photographs. Was the work represented on these photographs done under your supervision?

Mr. Smith: Three photographs, I believe, instead of four.

Mr. Marrin: Three photographs, yes.

The Witness: A. No. I think this was the concrete that was on the first 100-foot section.

Mr. Marrin: Q. I mean: Was the work of removing the bad concrete done under your supervision?

A. I don't know just where this is. Is this the roof?

Q. The station number is on the back.

A. Yes, that was done—It was taken out under my supervision.

Q. In what part of the tunnel was that located?

A. That was in the first 100 feeet; it was placed with a Hackley gun.

Q. The first 100 feet on the west portal?

A. Yes.

Q. That was placed with a Hackley gun?

A. I think those are in the north tunnel.

Q. Will you state about how many square feet of that concrete in the west portal section had to be removed and treated in this manner?

A. Oh, as I remember it, there was probably a surface of maybe 250 square feet.

Q. Were you required to chip or remove any of

(Testimony of Victor G. Hindmarsh.)

the concrete in there which had been placed by Pumpcrete?

A. No; we did not. Well, there was—I think there was one place, as I remember it now, where it was placed with wooden forms, and the forms had bulged, and that had to be chipped off.

Q. That was in the caved-in area?

A. That was in the caved-in area of the first cave-in.

Q. I have here two photographs of the concrete in the tunnels, which I would like to show you; and I would like to offer these as plaintiff's exhibit next in order.

(The photographs were marked "Plaintiff's Exhibit No. 93.")

[Set forth in the Book of Exhibits at page 317.]

[1556]

Mr. Marrin: Q. I show you Plaintiff's Exhibit No. 93. Are those photographs of some of the concrete placed by you in the tunnel? A. Yes.

Q. That was placed by the use of the Pumpcrete? A. Yes.

Q. Do you know which tunnel that shows?

A. It is pretty hard to tell; I don't know which tunnel it is. I think it is the south tunnel; but it may be either one of them.

Mr. Tinning: Isn't one of them in the north tunnel and one in the south tunnel?

A. That might be; it is pretty hard to tell.

(Testimony of Victor G. Hindmarsh.)

Mr. Tinning: The straight one is in the north tunnel; and the curved, in the south tunnel.

A. Well, there are curves in both tunnels. One picture is taken from the portal, looking in; this is from the inside, looking out; so it is hard to identify or to be positive which tunnel each is.

Mr. Marrin: Q. Well, it was taken in one of the tunnels? A. That's right.

Mr. Wittschen: Can you identify the station?

A. There are no stations on there.

Mr. Marrin: It shows quite a number of stations, Mr. Wittschen.

The Witness: It shows a long distance of the tunnel.

The Court: What is the purpose of this?

Mr. Marrin: Just to show the concrete,—the placing of concrete.

Q. Mr. Hindmarsh, did you ever have any discussion with Mr. Boggs concerning an extension of time for the completion of the contract?

A. Yes, I did.

Q. Will you state when you had your first discussion with him, on the time?

A. The first one I remember was November 19th.

Q. 1935? A. November 19, 1935.

Q. Where was the discussion had?

A. It was held in the Six [1557] Companies' office at the tunnel.

Q. Who was present?

(Testimony of Victor G. Hindmarsh.)

A. Mr. Boggs, Mr. Smith, Mr. S. D. Bechtel and myself.

Q. What was said at that conversation?

Mr. Wittschen: Objected to as incompetent, irrelevant and immaterial and hearsay, and not binding on the District.

The Court: Objection overruled.

Mr. Wittschen: Exception.

The Court: Q. Proceed.

A. Why, we met there, I think some time in the middle of the forenoon; and the discussion was started in by a discussion of the general condition of the tunnels; and Mr. Boggs wanted to know about when we would be able to get the north tunnel cleaned up from the cave-in, and resume operations again; and there was other discussion at the time. We were working 48 hours, as I remember it, on catching up on the driving and concreting on the tunnel that had been—

Q. You mean you were working the men 48 hours?

A. We were permitted to work the men 48 hours while we caught that work—that part of the tunnel up; and we discussed then if that same order would allow us to go through that work on the new work at 48 hours, or whether we would go back to 40 hours; and I think, in the discussion there, that we decided that the order did not intend to go into new work, and we went back to the 40-hour work. At that time, as I recollect it, Mr. Boggs asked me how

(Testimony of Victor G. Hindmarsh.)

much time the Contractor thought he was entitled to, on an extension, for the August cave-in; and I told him I thought about 90 to 120 days would be fair. Mr. Boggs stated he did not know whether we would be entitled to that much time or not, but he would rather study it a little further before he would commit himself as to the amount of time. Then Mr. Boggs asked if I could make out a schedule showing the different operations [1558] in the tunnel and about when we thought we could complete the full project. I told him I did not want to do that, at that time, because I had not driven any of the tunnel yet, and I would rather wait until I got under operation to see what I could do, and I thought I could have him a schedule by the first of the year, showing the amount of time it would take; and, at that time, would also show the amount of time beyond our contract time that would be necessary to complete the project; and I asked Mr. Boggs, at that time, when I made out the schedule and determined the amount of time that was necessary to complete the project, whether he would be willing to sit down with me and draft a letter for an application to the Board of Directors for an extension of time; and he said when I got the schedule up he would be very glad to sit down and draft with me such a letter, so that, when it came up to him, he would know all about it and would be able to recommend it to the board of directors. [1559]

(Testimony of Victor G. Hindmarsh.)

Q. Did you thereafter prepare a construction schedule?

A. Yes, about sometime along the first of January, the latter part of December or the 1st of January I prepared a schedule showing the time necessary to compiete the whole project.

Q. Did you thereafter present that to Mr. Boggs?

A. I presented it to Mr. Boggs or took it up to Mr. Boggs' office on the 22nd of January, with a rough draft of a letter application for an extension of time.

Q. That was on January 22, 1936?

A. January 22, 1936.

Q. Did you show Mr. Boggs the revised construction schedule?

A. I showed Mr. Boggs it; we went over the schedule together.

Q. Did you show him the draft of the letter requesting an extension of time?

A. Yes, I showed him the draft of the letter that accompanied the schedule.

Q. Mr. Hindmarsh, is this a copy of the revised construction schedule which you presented to Mr. Boggs at the meeting with him on January 22, 1936? A. Yes.

Mr. Marrin: I offer that in evidence as Plaintiff's Exhibit next in order.

Mr. Wittschen: Objected to as immaterial, and not having been left and received by the District,

(Testimony of Victor G. Hindmarsh.)

and not in any way binding upon the district. I would like to call your Honor's attention to the fact that neither the letter nor the schedule were left with us.

Mr. Marrin: They were presented, however, to the District Engineer, and discussed with him, and as we will show by this witness' testimony the District Engineer advised against making the application at that time, and suggested that he make it later. We want to show the action of the District Engineer with respect to our proposed request for an extension of time at this time.

Mr. Wittschen: Neither of these will prove that.

[1560]

Mr. Marrin: They would show the discussion between this witness and the District Engineer, and what they discussed.

The Court: I will give you a record on it. I have already indicated my state of mind with relation to that testimony. You have understood that.

Mr. Marrin: Surely.

The Court: I will allow it.

Mr. Wittschen: Exception.

(The proposed construction schedule was marked "Plaintiff's Exhibit 94.")

[Set forth in the Book of Exhibits at page 319.]

Mr. Marrin: I will now offer the form of letter which was presented to Mr. Boggs by Mr. Hindmarsh.

(Testimony of Victor G. Hindmarsh.)

Mr. Wittschen: The same objection, on all of the grounds previously stated.

The Court: So that the record is clear, I understand they were offered but they were withdrawn. What was the fact?

A. Yes, I went up and discussed these with Mr. Boggs in his office and during the discussion Mr. Boggs said that he did not think it was wise to put in the application at that time so I withdrew the letter and took it back to my office.

Q. You had a discussion as to this letter?

A. Yes.

Mr. Marrin: Q. Did he read the letter?

A. Yes.

Mr. Marrin: I offer the letter.

Mr. Wittschen: The same objection, on all of the grounds previously stated.

The Court: Overruled.

Mr. Wittschen: Exception.

(The form letter is marked "Plaintiff's Exhibit 95.")

Mr. Marrin: This form of letter, if your Honor please, reads as follows: [1561]

(Testimony of Victor G. Hindmarsh.)

PLAINTIFF'S EXHIBIT No. 95

January 10th, 1936

W. B. Boggs,
District Engineer,
1448 Webster Street,
Oakland, California.

Dear Sir:

I have prepared a revised schedule for construction on the Broadway Tunnel Job, and beg to submit same to you herewith. It will be noted that completion date in the north, or down-grade tunnel is estimated to be about the 5th of October, 1936; and at the south, or up-grade tunnel, about the 18th of October, 1936.

I trust that this schedule will meet with your approval, and the present completion date under the contract can be extended by you to conform to the times fixed in the schedule. At present the completion date is provided to be May 24, 1936; but under Section 4 of the Specifications, you have the power to extend same with the approval of your directors for the causes set forth in the Specifications, which are classified principally as Acts of God, stormy or inclement weather, or any reason which in your judgment unavoidably delays the work.

I believe you will agree that the contractor has been unavoidably delayed in the performance of the work for many reasons, including

(Testimony of Victor G. Hindmarsh.)

stormy and inclement weather, particularly in the winter of 1934-1935, and other reasons, including difficulty in handling and obtaining labor, which have unavoidably delayed the work.

I will be greatly pleased to have you indicate to me whether or not you will treat this as an application for the necessary extension and submit same for approval to your Board of Directors.

Very truly yours,
V. G. HINDMARSH.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 95. Filed May 5, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Q. Mr. Hindmarsh, you said that Mr. Boggs told you that he did not think you should present the application at that time. Did he give any reason for that statement? [1562]

Mr. Wittschen: I will object to that question on all of the grounds previously stated.

The Court: I will allow it.

Mr. Wittschen: Exception.

A. Yes, when he read the letter over in the first place, he said he did not think that that was the kind of letter that he thought we should put in, and that he wanted a letter giving all of the reasons why we were asking for an extension of time, and

(Testimony of Victor G. Hindmarsh.)

on each item to show the amount of time which we would want for each cause, so that when the letter came in to him and he brought it up to the Board they could strike out parts of it that they did not think we were entitled to an extension of time on, and allow other parts, that that would give him a complete record to go over.

Mr. Marrin: Q. Is that all he said?

Mr. Wittschen: The same objection.

A. No, there was other discussion in regard to the matter.

Mr. Marrin: Q. Give us everything he said.

Mr. Wittschen: I will make the same objection.

The Court: The same ruling.

Mr. Wittschen: Exception.

A. He said he thought I was a little bit optimistic in the schedule that I placed, but if I thought I could do it it was all right with him, but he said there was another reason why he did not think that we should ask for an extension of time at that particular moment, and that was in the spring of the year, it might be a late fall, and the outside work, all of the paving, which they did not want, to place on a wet fill, would be delayed, and if it was we would be entitled to an extension of time on whatever delay was necessary.

Mr. Marrin: Q. Is that all you recall of the conversation?

A. He also told me that if at such time as I presented or wanted [1563] him to accept that as an

(Testimony of Victor G. Hindmarsh.)

application for an extension of time, that it would only be a matter that the Board would reject, as they did not want to give any extension of time until their May meeting, just prior to our contract time being up, and that if we put it in then, presented it to them, they would reject it on those grounds.

Q. He advised you to delay the filing?

A. He asked me to delay it and make an application for an extension of time late in April, so they would have it before the Board of Directors on their first May meeting just prior to our contract time.

The Court: What was that date?

A. May 24.

Mr. Marrin: Q. Mr. Hindmarsh, you know, do you not, the work which had to be done by Six Companies of California at the time it stopped work on June 13, 1936 on the tunnels?

A. Yes, I know just exactly what had to be done.

Q. Will you describe briefly the work that remained to be done in connection with the tunnels?

A. Well, there was about 450 feet of excavation to complete in the south tunnel, and about 962 feet of excavation to complete in the north tunnel; the concreting was up within 125 feet of the excavation, and we would have to complete the ventilating plant, there was some of the roadway to be completed, and the outside work, none of it was completed, it all had to be, parts of the work, done on all of them.

(Testimony of Victor G. Hindmarsh.)

Q. Have you made an estimate of the time it would have taken Six Companies of California from June 13, 1936 to complete the work under the contract? A. Yes, I have.

Q. And have you shown that estimate on this graph which I show you? A. Yes.

Mr. Marrin: I will offer that as Plaintiff's Exhibit next in order.

(The graph was marked "Plaintiff's Exhibit 96.") [1564]

Q. According to your estimate, Mr. Hindmarsh, how long would it have taken Six Companies of California from the 13th of June, 1936 to complete the work under the contract? A. 204 days.

Q. And you would have completed it on January 3, 1937, according to your estimate?

A. Yes.

Mr. Wittschen: Might I ask a question?

Mr. Marrin: Yes.

Mr. Wittschen: Q. Paving on there means paving in the tunnel, doesn't it?

A. That is right. This schedule is based on the north tunnel, because at that time that was the point in connection with the completion; all of the rest of the work would be going on concurrently, and would be completed before the north tunnel would be completed.

Mr. Marrin: Q. The north tunnel would have been the last tunnel to have been completed?

(Testimony of Victor G. Hindmarsh.)

A. Yes.

Q. That would control the time? A. Yes.

Q. Now, Mr. Hindmarsh, in your experience have you driven any tunnels by the full face method?

Mr. Wittschen: Objected to as immaterial, irrelevant, and incompetent. The District is not bound by what is done in other tunnels.

Mr. Marrin: We are offering, your Honor, to show that the method proposed was a reasonable and proper method known to construction engineers.

Mr. Wittschen: The fact that other tunnels may have been driven by the full face method in other places proves no issue in this case. You might drive them in the Sierras and not drive them in the Coast Range; you would have to show the conditions were identical, and to go into the construction of other tunnels is utterly immaterial as far as this case is concerned.

Mr. Marrin: If your Honor please, on cross-examination of Mr. [1565] Larson, Mr. Price, and I believe Mr. Bechtel the defendant, itself, has gone into that matter extensively, and into other tunnels, in an effort to show that apparently that driving tunnels by the full face method is something that is rather unknown and unusual.

The Court: Limit yourself to the conditions existing here and I will allow it.

Mr. Wittschen: Take the Coast Range and this vicinity.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: You might limit it to this vicinity.

The Court: Conditions existing here. What tunnel have you in mind with relation to the geology of this, if any?

A. We drove the Pulgas Tunnel; I drove that tunnel, myself.

Q. Where is that?

A. Down near Redwood City, right here in the Coast Range.

The Court: Proceed. I will limit it.

Mr. Wittschen: That was a water tunnel.

A. That was a water tunnel 13 feet in diameter.

The Court: Proceed.

Mr. Marrin: Q. Did you drive any other tunnels in this vicinity by that method, Mr. Hindmarsh?

A. No, I did not right here in this vicinity; I did not drive any more; I have driven through the Coast Range, however, further north.

Q. Where?

A. On the Willamette Pacific Railroad.

Mr. Wittschen: I think we are pretty far away.

The Court: Q. Did the conditions compare with the conditions here in any way?

A. This was softer ground, your Honor. As it turned out to be, it was softer ground.

Q. Were they timber-supported? A. Yes.

The Court: I will allow it.

A. There were six tunnels on the Willamette Pacific; there were nine, six were driven full faced,

(Testimony of Victor G. Hindmarsh.)

fully timbered, and three of them [1566] in my division full faced and fully timbered, and that was in 1915 and they are still timbered and operating.

Mr. Marrin: Q. You have in mind other tunnels driven under similar conditions, that is, where the ground was not hard rock?

Mr. Wittschen: I object to that question as immaterial and not dealing with conditions here.

The Court: I have tried to limit the testimony to conditions existing here, the Coast Range. Without knowing very much about it, does the Coast Range extend from San Dieg- up to Oregon?

A. Yes.

Q. The formation? A. Yes.

Mr. Wittschen: I do not thi-k he claims the formation is the same.

Mr. Marrin: One of the issues is this, they represented to us at the time when we bid on this contract that this was good self-supporting ground, and we, relying upon this representation, adopted the full face method.

The Court: We will go into that at the proper time. I think I indicated I have a state of mind on that subject. If it would be helpful I will disclose it now; if it is desired by either side I will do so. I want both sides to get a record.

Mr. Marrin: Surely. We simply want to show if we were of the opinion that the ground was self-supporting that the method of driving that was

(Testimony of Victor G. Hindmarsh.)

adopted, the full face method was a reasonable method to adopt.

Mr. Wittschen: If your Honor please, I think there are quite a few cases that go to the point that you cannot ask an expert witness what he would have done in some other tunnel. Now, the fact that the Coast Range may geographically extend from some distance in the South and be bordered by the Willamette Valley on the west, it does not prove that conditions in Oregon are the [1567] conditions here. The witness, himself, said that the conditions were different in the north tunnel and south tunnel, only 100 feet apart.

The Court: The thing I had in mind was, if my memory serves me, on cross examination you developed as to all of the tunnels, and I wanted to allow the same latitude to the other side. That is the only reason. I want to limit it. I think we have wasted some time.

Mr. Wittschen: That was on cross examination of the witness. You can test a witness by asking him these questions.

The Court: But I allowed considerable latitude under those conditions, and I am inclined to consider the balancing of it.

Mr. Wittschen: Evening it up, but this is not cross examination. This is direct examination of another witness. If you kept on with that you could drag every immaterial thing in the witness may have said.

(Testimony of Victor G. Hindmarsh.)

The Court: Here is what I have in mind, I think it was developed before, one of the tunnels he dug up there is still up there, the timbers are holding.

A. That is right.

The Court: So far as the conditions there are concerned, they are not the conditions here, as they did not hold here six months. What do we accomplish?

Mr. Marrin: We accomplish only this, we show that in bidding on this tunnel it was not unreasonable in assuming that it could be excavated by the full-face method, that the method of excavation adopted in making our estimate was a reasonable one, upon the assumption which the plaintiff made from the geological report and the specification.

The Court: I am trying to limit the testimony. What other tunnels comparable to this have you in mind on the Coast Range, [1568] aside from the one you have indicated?

A. There are the Hetch Hetchy tunnels, part of them, I think, were dug with the full-face method.

The Court: I think I indicated to you yesterday I inspected that, myself, at the time.

Mr. Wittschen: That was a small tunnel, the size of the drift in one of these.

A. The Claremont Tunnel was driven by the full-face method.

The Court: Where are we now? What is before the Court?

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: I think the question perhaps has been answered, as far as your Honor will permit it, under the limitation.

The Court: Let us proceed.

Mr. Marrin: Q. Are the Parker Dam tunnels in the Coast Range?

Mr. Wittschen: No, they are up on the Colorado River.

Mr. Smith: That is a continuation of the Coast Range.

Mr. Wittschen: That is pretty far away.

The Court: That is sort of a wide jump.

Mr. Wittschen: I thought it was a hop.

Mr. Marrin: Q. Did the Parker Dam tunnels require timbering before driving?

Mr. Wittschen: Objected to as immaterial, and too far away.

The Court: The objection will have to be sustained. Let us proceed.

Mr. Marrin: Q. Mr. Hindmarsh, did you have anything to do with making the estimate which the plaintiff estimated for this contract?

A. I did not have anything to do with the details or estimate of the tunnel, itself; I estimated all of the grading work, outside of the tunnel, but I did go over the estimates in conference at the time just before the letting of the whole tunnel estimates.

Q. Had you read the specifications?

A. Yes, I had read the [1569] specifications.

(Testimony of Victor G. Hindmarsh.)

Q. Did you know the statements in the geological report?

A. Yes, I knew them.

Q. And you knew of the driving method proposed in the estimates?

A. Yes, I knew them.

Q. Is it your opinion that the driving methods proposed in these estimates were or were not reasonable, in view of the statements in the specifications and the geological report?

Mr. Wittschen: Objected to as immaterial, and not binding upon the defendant in any way, how they proposed to build the tunnel.

The Court: I will consider this during the lunch hour. We will take a recess until two o'clock.

(A recess was here taken until two o'clock p. m.)

[1570]

Afternoon Session

VICTOR G. HINDMARSH

Direct Examination (continued)

Mr. Marrin: I think there was a pending question, your Honor, and an objection to it that was made just before the noon hour.

The Court: Read the question.

(Record read.)

Mr. Wittschen: We objected to that, and we will also object as calling for his opinion.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: If the Court please, I am calling for his opinion as to the reasonableness of the estimate which was made. He has testified that he participated in the conference at which the estimate was arrived at, that he was familiar with the specifications and knew of the geological report, and he knew, also, of the driving methods which were proposed. I am asking his opinion, as an expert, as to whether he considered those proposed driving methods in the bid to be proper, in view of the statements in the specifications and the geological report.

Mr. Wittschen: In the first place—

The Court: This is off the record.

(Discussion, off record.)

The Court: I will allow the question; but I will confess at this time it does not impress me on the merits here. I say that so that you are not misled by anticipating the state of mind I may or may not have.

Mr. Marrin: Surely.

The Court: I will give them a record. Objection overruled.

Mr. Wittschen: Note an exception.

The Witness.: Would you read the question, please?

(Pending question read by the reporter.)

[1571]

The Witness: A. Yes, I think they were very reasonable.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Q. If you were estimating this work again on the basis of this case, would you estimate the same method of driving?

Mr. Wittschen: Object to that as immaterial and calling for an opinion and conclusion, and not binding on the defendant.

The Court: Objection sustained.

Mr. Marrin: Q. Will you give your reason for the previous question which you answered?

Mr. Wittschen: Objected to as immaterial and calling for a conclusion and opinion of the witness on an immaterial matter. Whatever the reasons were, they were reflected in the prices that appeared in the bid.

The Court: The objection will be sustained.

Mr. Marrin: If the Court please, he has stated his opinion—

The Court: I have listened to testimony here for the last—how many days?

Mr. Wittschen: About twelve.

The Court:—and I suppose that would be another recital of that for his reasons. Do you follow my state of mind?

Mr. Marrin: I want him to give his reasons for the last answer. He answered the question, and I wanted him to give his reasons for it.

The Court: Briefly, he may state his reasons.

Mr. Wittschen: Note an exception.

The Witness: A. Well, the reasons for driving a tunnel by full face method—

(Testimony of Victor G. Hindmarsh.)

Mr. Wittschen: Q. We cannot hear you, Mr. Hindmarsh.

A. The reasons for figuring or planning to drive the tunnel by the full face method, wherever you have got self-supporting ground, it is the fastest and most economical way to drive any tunnel; and it is also figured that way; the Contractor figures if the ground is [1572] self-supporting—and that is the reason this one was figured that way.

Mr. Marrin: Q. Mr. Hindmarsh, you knew that the estimate upon which the bid was submitted by plaintiff to the defendant in this case provided for driving a tunnel from the west end, did you not?

A. Yes.

Q. In your opinion, was that a proper method of driving a tunnel?

Mr. Wittschen: Objected to as immaterial. It was entirely within the control of the Contractor, and the last answer of the witness shows the vice of this method of testimony. Mr. Larson said he did not intend to drive by full face until he got in 760 feet. This witness concluded he would drive full face from the start.

Mr. Marrin: No; I don't think so. I asked him about the driving method contemplated in the estimate.

Mr. Tinning: He said "full face method was the most economical."

Mr. Wittschen: Probably the witness misunderstood you, and we both assumed you were talking

(Testimony of Victor G. Hindmarsh.)

about full face, because he said that was the most economical and indicated it would be entirely full face.

The Court: In any event, it is well to keep in mind the District was not bound by any method.

Mr. Marrin: This last question does not go to full face, your Honor. It goes to the question of driving the tunnel from the west end, alone.

Mr. Wittschen: Well, they could have driven it from the east end if they wanted to. There was nothing to prevent it.

Mr. Marrin: I want this witness to testify in his opinion as to whether it was reasonable, in view of the information the plaintiff had, to plan to drive it entirely from the west end.

Mr. Wittschen: I submit there is no issue on that. They could [1573] have driven it from one end or both.

Mr. Marrin: It goes to the question of time, if the Court please.

The Court: What relation has that to time?

Mr. Marrin: Well, if it should be contended that the tunnel should—

The Court: Are you anticipating the defense, now?

Mr. Marrin: No; I am not anticipating it. I am simply attempting to show the reasonableness of the method the plaintiff proposed. In other words, the plaintiff did not go to the east end with any of this work until June, 1935.

(Testimony of Victor G. Hindmarsh.)

The Court: Well, in any event, he was not bound by what he might or might not think of that matter; that was a matter for him entirely.

Mr. Wittschen: By the same token—

Mr. Marrin: It is a matter for the plaintiff, yes; but I think it is up to the plaintiff to show that the method adopted was reasonable, in view of all the circumstances.

The Court: He already testified it was, without indicating what end of the tunnel he might or might not be working on. However, I will allow you a record on it; but I must indicate to both sides that I am going to be severe on my rulings, or we will be here until the rains fall again.

Mr. Wittschen: Note an exception.

The Witness: Will you read the question, please?

(Pending question read by the reporter.)

The Witness: A. Yes; I considered it was a very proper method of driving it. In all short tunnels, wherever—There are only two reasons for driving a tunnel from both ends: one of them is the limit of time; and the other is distribution of material. In this instance, if the tunnel had been—or, if the material had been [1574] as represented, there was plenty and ample time to drive the tunnel from the west end.

Mr. Wittschen: Pardon me. I ask that the part, "if the material had been as represented," go out.

The Court: It may go out.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Q. Have you stated all your reasons, Mr. Hindmarsh?

A. No; first, the distribution of material: in this case, they figured the only place to deposit it was on the west end of the tunnel; there were a few places on the east end that possibly it could have been hauled to,—but a long-distance, expensive haul, to dispose of it on the east end. The logical place was the west end; and, if you are figuring on driving from both ends, it would be a duplication of very heavy, expensive equipment, which naturally would have raised the Contractor's price, if he intended to do it.

The Court: Q. Well, the main fact there would be economy, wouldn't it?

A. Yes, very much economy.

Mr. Marrin: Q. Mr. Hindmarsh, of what does the timber in a tunnel consist?

A. The main timber in a tunnel is the posts and segments, which are generally, as a rule, 12 by 12. This is lagged with, as a rule, from 3 by 3's to 3 by 12's, all around the perimeter of the tunnel wherever it is necessary. That is also the case except in places where there is liable to be considerable spiling and your crown bars above your rings.

Q. What part of the timbering consists of the lagging, in percentage?

Mr. Wittschen: Objected to as immaterial and too vague and indefinite. I take it, some tunnels

(Testimony of Victor G. Hindmarsh.)

are lagged entirely, and some are not lagged at all; and you cannot say, unless you know the exact case. The term "timbering" is defined in the specifications, in any event.

Mr. Marrin: Q. What part of the timbering in the Broadway Tunnel would be lagging, Mr. Hindmarsh? [1575]

A. Well, I would say about 40 per cent.

Q. In ground which is not self-supporting, can the lagging be removed? A. No.

Q. In ground which is not self-supporting, is it good practice to remove any of the timbering?

A. No; it is not good practice. In the last 20 or 25 years, there are very few engineers who will allow you—

Mr. Wittschen: I submit the question has been answered, and that is a voluntary statement.

Mr. Marrin: Q. In your experience during the last 20 years, have engineers, generally, permitted the timbers to be removed from tunnels in which the ground is not self-supporting?

Mr. Wittschen: Objected to as immaterial, and calling for an opinion and conclusion of the witness upon a matter which is not in issue in this case. What is done in other tunnels is not a criterion for what should be done here,—what other engineers do; and I am prepared to submit to your Honor a line of authorities excluding all this line of testimony, if your Honor cares for it.

(Testimony of Victor G. Hindmarsh.)

The Court: On what theory is the removal or necessity for removal of the timber here—how does that bear upon the issue?

Mr. Marrin: Well, if the Court please, in these specifications—

The Court: I have in mind, under the plans and specifications.

Mr. Marrin: Yes. Under the plans and specifications, it stated that the general intent of the specifications was that the timbers shall be entirely removed. Upon the cross examination of Mr. Larson and some of the other witnesses, the defendants themselves have gone extensively into the question of whether the timber was removed from other tunnels,—for instance, the Hollywood Tunnel and the Bayshore Tunnel.

The Court: That has no relation to the issue here. Here, [1576] the Engineer permits some of the timbers to remain; under the plans and specifications, he could have designated that that be removed.

Mr. Marrin: He could have, yes.

The Court: If I am in error about that, correct me.

Mr. Wittschen: He not only could have, but the testimony is they could have left it, or taken it all out, or they could have evolved a different method of driving the tunnel, and leaving the core in, and stulling against it.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: I think the testimony goes to show what might be reasonable practice, from experience in the contracting industry, on reading the specifications.

The Court: Have you indicated, for the purpose of the record, the purpose of the offer? I have in mind the issues in this case.

Mr. Marrin: The purpose of the offer, if the Court please, is to show that, where ground is not self-supporting, the timber is not usually permitted to be removed; and these specifications provide for its removal. It shows they indicate that the ground would be self-supporting.

Mr. Wittschen: Mr. Larson gave his direct testimony on the Bayshore Tunnel, and testified in that Tunnel No. 3 they took all the timbers out. He was asked if it was self-supporting, and he said "No." Then, on redirect examination, he was asked if that were done in this tunnel,—could it have been done? Yes. How much more would it cost? A million dollars more, was his answer. Now, what they do in other tunnels and what their conclusions are, as to what would have happened in other tunnels, is entirely immaterial here. These specifications are neither ambiguous nor uncertain. They state it is the general intent that timbers shall be removed; if it is impracticable to remove them, they shall remain in, or, wherever practicable, they should remain in.

(Testimony of Victor G. Hindmarsh.)

The Court: The Court has allowed considerable latitude in [1577] this case, and the reason I did it was: when you outlined your case at the beginning, you indicated that time was of the essence here, and that was the issue as it appeared. For that reason, I allowed considerable latitude on both sides, but finally this case must be determined from the plans and specifications, and no matter what may or may not have occurred in other ground, or in other tunnels, will not finally determine the issues in this case.

Mr. Marrin: I appreciate that, your Honor; but I think the plans and specifications, when they are drawn and presented to the contractors, a contractor would be entitled to read them, in the light of the general practice in the construction industry; and that is the point at issue, if your Honor please.

Mr. Wittschen: That would be changing the contract by parole evidence.

The Court: In any event, the Court cannot make another contract in this case, and has no thought of making another contract. I try to point these matters out, now, so I will not lull either side into security as to what I may or may not do. I am trying to give you a proper record here; so, if I am in error, either side will have the record to comfort them. That is one reason why, if I am in doubt about any testimony, I will allow it to come in. Now, if you want to submit the matter, I will rule.

Mr. Wittschen: I will submit it.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Surely.

The Court: Read the question.

(Pending question read by the reporter.)

The Court: Objection will be sustained.

Mr. Marrin: Note an exception, please.

Mr. Alexander: We join in the exception, your Honor.

Mr. Marrin: Q. Mr. Hindmarsh, you have heard all the testimony [1578] in this case up to date, have you not? A. Yes.

Q. Would you state whether, in your opinion. the Contractor, the plaintiff in this case, was delayed in the construction work, by reasons beyond its control?

Mr. Wittschen: Objected to as asking the witness to weigh the testimony, and not a proper hypothetical question, and immaterial, because that is a matter for the Court to determine, in any event; so, therefore, to the objection we add it invades the province of the Court.

Mr. Marrin: If your Honor please, this witness is familiar with all the testimony, and also is familiar with the work which was done, and the conditions of work; I think he is entitled to express an opinion on that subject.

The Court: He has already testified as to every detail, as the other witnesses have. From that record, the Court must finally try to determine that issue, after you determine all the facts in relation to any delay, if a delay occurred, through the acts

(Testimony of Victor G. Hindmarsh.)

that you may or may not have had control of. You have got a record on that; and I must determine, from that record, finally, an answer to the question that you addressed to this witness.

Mr. Marrin: I appreciate that, in the end, your Honor, you are the one who has to express an opinion.

The Court: I can anticipate the answer of the witness on the stand. The objection will have to be sustained.

Mr. Marrin: Note an exception.

Mr. Alexander: We also except, your Honor.

Mr. Marrin: You may cross examine. [1579]

Cross Examination

Mr. Tinning: Q. When you set the timbers in the portions of the tunnel which you excavated how much clearance did you allow on the plumb posts at the side of the tunnel?

A. 3 inches minimum.

Q. 3 inches? A. A minimum of 3 inches.

Q. A minimum of 3 inches? A. Yes.

Q. Was that at the top and bottom?

A. Yes, that was top and bottom.

Q. Was your wall plate also set 3 inches in the clear?

A. Yes, it was set 3 inches in the clear.

Q. That applied to all work? A. Yes.

Q. The segment above the wall plate, that was also set clear 3 inches?

A. That was set 3 inches in the clear.

(Testimony of Victor G. Hindmarsh.)

Q. Isn't it true, Mr. Hindmarsh, when you drove the tunnel and you found that the ground appeared to be moving, that you frequently set the crown or top timber at the top as much as 9 inches in the clear? A. That is right.

Q. All of the segments of the various sizes, for instance, all A segments, B segments, and C segments were of the same size, were they not?

A. 12 by 12, you mean?

Q. The same length, they were all cut out in the lumber yard, were they not?

A. No, there were individual sets set; when it was necessary there were no segments cut.

Q. Isn't it true that most of the segments were brought in cut to size? A. Yes, most of them.

Q. When you set your segments 9 inches at the top isn't it true that you used the same pieces and simply shortened up the curve on the wall plate?

A. No.

Q. Did you cut extra sets?

A. We cut extra sets, many times.

Q. The timber diagram, Plaintiff's Exhibit 79 for one tunnel, and [1580] Plaintiff's Exhibit 80 for the other, apparently commenced at a station somewhere above where—that is east of where the slide actually occurred on August 28, 1935? You know what I am referring to?

Mr. Marrin: You mean the timber survey?

Mr. Tinning: Yes. A. Yes.

(Testimony of Victor G. Hindmarsh.)

Q. Do you remember where you started that survey or the portions of the north tunnel that you surveyed—would you like to look at this—I think we can find them there so big.

A. We started just about the slide, the cave-in.

Q. The cave-in was at 114?

A. 114, and extended to about 114+96.

Q. Close to 115+00? A. Yes.

Q. You went on with that survey up to about the point that I am indicating here, did you not, about 122? A. 122.

Q. It is true, is it not, that there had been movement in the timbers west toward the portal of the west tunnel before you made the survey?

A. I believe right there in the cave-in there had been movement.

Q. The cave occurred while the workmen were setting back timbers, at that point where the cave occurred?

Mr. Marrin: Now, Mr. Tinning, he did not testify to that. This witness testified he did not come onto the work until after that.

Mr. Tinning: Is there any question about the fact?

Mr. Marrin: No, there is not any question about the fact, but this witness is not the proper witness to ask that question, because he does not know the fact.

(Testimony of Victor G. Hindmarsh.)

Mr. Tinning: Q. You know the timbers were reset there, don't you?

A. I don't know what happened there, at all.

[1581]

Q. You have not been over the records?

A. I do not think that our record shows that the timbers were reset; there are none that I have seen.

Q. But you do know that there had been some movement because you have already told me.

A. Yes, I knew they were working; I understood they were working there at the time on the timbers when they caved in. That is all I know.

Q. In the south tunnel is it likewise true that there had been some movement of the timbers west of the point where your survey commenced?

A. That I don't know, whether there was any movement, at all, there or not.

Q. You do know, however, that it was possible to put the concrete lining into the westerly portion of the south tunnel without resetting any substantial amount of timbers; you went right through there after the slide, didn't you, up to the adit?

A. You mean in the north tunnel?

Q. In the south tunnel.

A. In the south tunnel, yes, we went very close to the adit with the concrete.

Q. And the adit is the first adit as you enter the tunnel, the most westerly of the three in the completed structure, located at the place where the

(Testimony of Victor G. Hindmarsh.)

Wildcat fault is indicated on Dr. Louderback's report? A. Approximately that.

Q. In that area? A. Yes.

Q. And was the modified section installed from the adit on up to station 122? A. Yes, it was.

Q. So that there was pressure in the north tunnel along through that area on the righ-hand side of the tunnel, that would be the south side of the north tunnel? A. On both sides.

Q. On both sides? A. Yes.

Q. The timber diagram will show at the time the measurements were [1582] made the extent to which timbers had intruded into the section that you have just referred? A. Yes, they would.

Q. And likewise would show where intrusions occurred in the south tunnel?

A. That is right.

Q. How much closer up to the excavated face of the tunnel while you were driving it did you keep your concrete than when Mr. Price was on the job?

A. When I caught up with the concreting I tried to keep it up to 125 feet, or close thereto.

Q. When you came to the tunnels there were several hundred feet of unlined excavated tunnel there? A. That is right.

Q. Now, that square setting which you used in preventing the movement of timbers and holding the tunnel is not a novel method of holding timbers that are moving, or moving ground, is it?

(Testimony of Victor G. Hindmarsh.)

A. No.

Q. It is a usual method?

A. It is the usual method.

Q. And it is true, is it not, that square sets such as you used provided very much stronger support in a long tunnel arch than is provided by the ordinary timber that was used in this tunnel?

A. That is true.

Q. The wood forms which were built in this tunnel in the square-setted sections were normal forms for the type of construction you had to do where you had a square set?

A. Yes, I built many of them.

Q. When you started the excavation of these tunnels, yourself, after you caught up with the concrete and started driving, how long were the drill holes that you used in the core, on the average?

A. That depends on what part of the core you are talking about that varied all the way from 6 feet to 12 feet.

Q. Let us start with the longest ones. What part of the core were those in?

A. They were in the lifters, in the center of the core.

Q. At the ground level? A. That is right.

[1583]

Q. Where were the 6-foot holes?

A. Along the edges.

Q. Near the timbers?

(Testimony of Victor G. Hindmarsh.)

A. Yes, under the wall plate.

Q. Did you run about the same length of the drill holes used as you continued the driving?

A. Yes, that was practically the practice right straight through.

Q. It was about the same all the way through?

A. Yes.

Q. How many drill holes did you have in the face of the tunnel, in general average practice, as you went up the core?

A. That varied very much, that I don't know; sometimes we would shoot the core with three or four holes, and other times it would take ten or fifteen of those holes right in the center of the core. It all depends on the formation of the ground, how hard it was; some did not need any powder at all; the shovel took it out without any powder.

Q. In other places you had to drill these holes 12 feet long? A. Yes.

Q. Did you ever run into as many as 40 holes in the space of one blast?

A. We might have, yes. I would not doubt that we had.

Q. When you had a 12-foot hole how many sticks of powder did you have in it?

A. Well, that varied; it varied with the ground; I don't know just how many sticks of powder we had in each hole, because each hole was different.

Q. I understand that there was varying material,

(Testimony of Victor G. Hindmarsh.)

but when you had a 12-foot hole what was the minimum amount?

A. The length of the hole did not mean anything about how much powder you put in it; you might put as much powder in a 6-foot hole as you would in a 12-foot hole.

Q. What was the minimum you would put in a hole? A. 4 or 5 sticks.

Q. A stick weighed about half a pound?

A. I think it takes three sticks, as I remember it, for a pound of powder.

Q. What would be the most powder you put in one of these drill holes?

A. Well, it averaged about three-quarters of a pound [1584] to a yard; I think you could get it easier that way.

Q. You cannot tell me how many pounds you put in a given drill hole, as a maximum?

A. No; I don't know of any hole that I took the exact amount and found out how much powder was in there.

Q. I think there was approximately 35.6 yards of earth in each lineal foot in a section. Does that conform to your memory of the situation?

A. That was the full tunnel face, yes.

Q. And the overbreak was six or seven yards more, was it not? A. Yes.

Q. So that if you used three-quarters of a pound per yard you would have used about how many pounds to each lineal foot?

(Testimony of Victor G. Hindmarsh.)

A. You would have three-quarters of 45, whatever that is.

Q. It would be somewhere around 33 pounds?

A. Yes.

Q. So that if you used 12-foot drill holes you would have twelve times as much powder as that?

A. Well, no, that was scattered in a good many places, not only in the core; the drift was all shot separate on both sides of the tunnel, the wall plate drift, and the rings were all shot separate, and the core was shot separate.

Q. Do you mean at separate times?

A. At separate times, yes.

Q. Do I understand then when you were shooting up one of these drifts ahead that firing was done at a different time than the firing in the face?

A. Oh, yes, lots of the time, most of the time.

Q. Sometimes they were all fired together, were they not?

A. Well, they might be.

Q. It was not the practice, though, to fire them at once? A. No, it was not.

Q. Isn't it a fact that as you progressed with the work, Mr. Hindmarsh, that you began to shoot more heavily than you had when you started?

A. No, I don't think that is the case. [1585]

Q. Did you receive a letter from Mr. Boggs on January 30, 1936, with respect to heavy shooting?

A. Yes, I remember receiving a letter.

Mr. Tinning: If your Honor please, we offer in

(Testimony of Victor G. Hindmarsh.)

evidence a letter dated January 30, 1936, addressed to Six Companies of California, Berkeley Office, a copy of which went to Six Companies, 155 Sansome St., San Francisco. Is that the copy?

A. Yes, that is a copy.

Q. Is it the letter that you received?

A. Yes.

Mr. Tinning: We offer it in evidence as Defendant's Exhibit in proper order.

(The letter was marked "Defendant's Exhibit I-4.")

Mr. Tinning: It reads as follows:

DEFENDANT'S EXHIBIT I-4

January 30, 1936

File: Broadway Tunnel
Blasting

Six Companies of California,
P. O. Box 120,
Berkeley, California.

Gentlemen:

On January 28, 1936, at about 11.00 A.M., very heavy blasting was done in the Downgrade Tunnel.

The District Engineer was standing in the West Portal Building more than one-quarter of a mile from the location of the blasting and noted extremely heavy shocks and vibration resulting from the shooting.

Your attention is directed to provisions of

(Testimony of Victor G. Hindmarsh.)

the Specifications with respect to the use of explosives, and you are advised that you will be held responsible for any damage occurring to the building or tunnel lining, or other structures, which may result from your blasting operations.

Very truly yours,
(Signed) Wallace B. Boggs
District Engineer

WBB/VE
CC to Six Companies of California, 155 Sansome St., S. F.

[Endorsed]: U. S. Dist. Ct. M. D. Cal. No. 20101-R. Deft's Ex. No. I-4. Filed May 5, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Q. The downgrade tunnel was the north tunnel?

A. Yes. [1586]

Q. Following your receipt of that letter, Mr. Hindmarsh, did you diminish the charges of powder that you were using at a given time?

A. No, I did not.

Q. You proceeded about the same way?

A. About the same way.

Q. Driving forward and making the best time you could with the excavation?

A. Yes, that is what I was there for.

Q. Do you remember that on February 4, 1936, a heavy shot was fired in the left wall plate drift in the north tunnel at station 126+35, which broke the

(Testimony of Victor G. Hindmarsh.)

ground ahead from station 126+35 to 126+43—that would be a distance of 8 feet—in the left wall plate drift of the north tunnel, that would be the north drift of the north tunnel. Do you recall that incident, at which time all of the timbers in seven sets back of the drift face, that is, from station 126+35 back to station 125+92, a distance of 43 feet, were blown out of the drift? A. No, I do not.

Q. You don't recall that? A. No, I do not.

Q. You would not say it did not happen?

A. I do not think it happened.

Q. You do not think it happened?

A. No, I do not.

Q. And that later on the same day, or February 4, while clearing up the wreckage of this thing the mucking machine pulled out three more sets back of 125+92?

A. The mucking machine pulled out some sets, this Bagley pulled out some sets.

Q. Did the hill fall in on you then?

A. No.

Q. Do you remember that the day following, on February 5, 1936, when the core was shot at station 125+12 in the north tunnel, two complete rings were shot out, including the segments and the spreaders at station 124+94, that is 20 feet back from where the shot was fired?

A. Yes, I remember that. That is nothing unusual in any tunnel. [1587]

(Testimony of Victor G. Hindmarsh.)

Q. The ground was sufficiently good there that you never put these sets back, did you?

A. That is right.

Q. Defendant's Exhibit H, which is in evidence here, shows these rings that you shot out? I will show you Defendant's Exhibit H. Your Honor has already seen this exhibit, which is the one looking up at the ceiling of the tunnel. Does that represent the condition as it was?

A. That is right. The lagging was clear across the roof, so it protected the roof from caving; there was no danger there as long as the concrete was coming in close by.

Q. And that was the reason it was left standing in that position? A. Yes.

Q. Now, Mr. Hindmarsh, a few days later, and on February 6th, do you remember that in the left wall plate drift at station 126+50 to station 126+56 a shot was fired and that nine sets in that drift were shot out, all of the timbers in nine sets in that drift were shot out back to station 125 plus 82?

A. No.

Q. You don't remember that? A. No.

Q. Would you say that it did not occur?

A. Yes.

Q. Do you remember that on February 15, 1936, in the down-grade tunnel between station 126 and 126+10 a run occurred under the left wall plate that started at midnight and was stopped at 4 a.m.,

(Testimony of Victor G. Hindmarsh.)

with a power shovel? Do you remember that incident?

A. Why, we had that on several occasions; we had several small runs that were stopped; I don't remember that.

The Court: What do you mean by small runs?

A. Well, material right back of the timber would start coming down. This happens most any place in the tunnel where the ground is broken.

Q. Running material?

A. Running material in behind the timber, and sometimes you have to put in some more lagging to keep it from running. That is not unusual in any tunnel.

Mr. Tinning: Q. And that at the place where the run occurred [1588] there was 15 feet of unsupported wall plate between the post that was nearest to the core in the wall plate drift. Do you remember that condition?

A. Well, that might have happened. I know on several occasions we had 15 feet of wall plate unsupported.

Q. You did not consider that that was treading close to danger to have 15 feet of wall plate not supporting those rings that are holding up the roof?

A. That depends on the condition where you are. That is a common thing to let a 14-inch wall plate stand that distance.

(Testimony of Victor G. Hindmarsh.)

Q. When that wall plate is sagging down two inches in the middle of the span won't it loosen up the rings above?

A. If it sags down, but that is not unusual. It might sag before it ever came in the core at all.

Q. If it sags that way it loosens the rings above?

A. That is true, if they are not tightened up.

Q. And the rings are supporting the roof in unsupported ground?

A. Yes, but these segments lots of times with the wall plate will settle, because in our drift the ground, as you know, was soft, and when we put these wall plates in on mud sills, if any load comes on it, as a rule, these wall plates at times may sag, but that was all caught up before it ever came off the wall plate drift, and the segments retightened.

Q. I am talking now about a condition where you have 15 feet of wall plate that is unsupported between the posts, the last plumb post or batter post, and the place where it is supported on the ground in the wall plate drift, if you have a sag of two inches there won't that loosen it?

A. That depends on where it sags. It might have been in that condition before it ever got out of the wall plate drift.

Q. In other words, it was a warping of the timber and it had all been taken care of by bracing?

A. Yes. [1589]

Q. And checking in such a way you had a stable condition? A. That is right.

(Testimony of Victor G. Hindmarsh.)

Q. But if it sagged, after you had taken the support out from underneath the wall plate it would follow that the rings above were not supporting the roof at that place, wouldn't it?

A. No, that does not always follow, because if you have got heavy ground there enough to sag your wall plate your roof will follow the timbers, the timbers will be sticking up the side and your timbers set.

Q. If you have not gauged it right it may come right down and follow down to the bottom of the tunnel?

A. That is possible in any tunnel.

Q. Mr. Hindmarsh, this is a diagram made from the records of the District of the locations of all of the timbers in the north tunnel from station 122, where you started your driving, through to the place that Six Companies ceased doing work on the 13th of June, 1936, and shows on the bottom the posts on the south side of the tunnel and on the top the posts on the north side of the tunnel, the left side, and in the center space between the wall plates or between the caps where you did not have a continuous wall plate; it shows the segments. Does that appear to represent to you the locations of the timbers in the portions of the tunnel that are referred to, as you remember them?

A. Yes, it looks something like it; I guess it is approximately what it was. It is pretty hard for me to tell, just looking at that diagram, at that particular station you state it was.

(Testimony of Victor G. Hindmarsh.)

Q. Well, do you remember this timbering that we were discussing, that was shot out at 124+90 a little while ago?

A. If that is the station I don't know.

Q. The station appears.

A. I don't know what your diagram shows [1590] there, what it is.

Q. What do you mean?

A. I don't know if that is the place that the timber was shot out, or not.

Q. You can see station 124+90? A. Yes.

Q. I asked you a short time ago if it was not a fact that the timber was shot out of there, and you said you didn't know.

A. What I meant by that is I didn't know the exact station. I know there was some shot out, but I don't know the station.

Q. You did not see any other timbers shot out in that tunnel that was not replaced? A. No.

Q. You said this morning with respect to a letter from the Industrial Accident Commission and a diagram that was sent, that you had difficulty about your batter posts. You use batter posts frequently, don't you? A. Yes.

Q. And you use those to advance ahead under the wall plate as you drive ahead to get support as far ahead as you can? A. That is right.

Mr. Marrin: Pardon me. I think you misquoted the witness' testimony. I do not recall his testifying he had any difficulty about the batter posts.

(Testimony of Victor G. Hindmarsh.)

Mr. Wittschen: He said the Industrial Accident Commission suggested that batter posts go in, and he indicated it was a novel method. We might have misunderstood him.

A. You must have misunderstood me. I did not intend to say that.

Mr. Tinning: Q. You have used batter posts?

A. Yes.

Q. You used them during a good part of the work that you did in the north tunnel?

A. That is right.

Q. You used them for the purpose of getting support under the wall plates as far ahead as you could, so that when your wall plate was in the drift you could get a space between that and the next vertical [1591] post support as near as you could to take care of the weight of the timbers that ran from the roof of the tunnel? A. Yes.

Mr. Marrin: Identify the document. That is not in evidence yet.

Mr. Tinning: I wanted to see if he recognized what it was, and then I propose to offer it in evidence.

Mr. Marrin: You may mark it for identification, or you may put it in subject to check.

Mr. Tinning: It is made from our records and I think it is correct.

Mr. Marrin: Is that to scale?

Mr. Tinning: Yes.

(The diagram was marked "Defendant's Exhibit J-4.")

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: We do not admit the accuracy of it.

Mr. Tinning: No. It is formed the same as your timber record.

Q. Now, referring to this timber diagram, Defendant's Exhibit J-4, I will ask you, Mr. Hindmarsh, to examine the portion between stations 126 and 127, which is the area where your slide of February 22, 1936, occurred. I believe you stated that that slide, as you remembered it, occurred at 126+50. A. I think that is right.

Q. In making that statement are you sure of that, or is that your best recollection?

A. No, I am not sure of it. That is my recollection, as I remember, of the station it was at that time. It might have been one way or the other.

Q. It might have been 25 or 30 feet either way?

A. Yes.

Q. Was the ground, as you approached the place where this cave-in occurred, increasingly better, or was it getting worse?

A. Well, it varied all the way through, the ground generally, most every round; the condition of the ground you could not predict at any time, what it was going to be. [1592]

Q. You notice on this diagram it shows that you had your plumb posts and batter posts closer together around station 124 than you had when you got up near station 127, where this slide occurred.

A. Well, there were ample posts under there at any time to hold anything that the wall plate could stand. It would have held with half that many.

(Testimony of Victor G. Hindmarsh.)

Q. If you had half that many as you actually installed there you could have held that wall plate?

A. It would have crushed the wall plate before it would break the posts.

Q. For that reason you were able to put two and three timbers over the ring at the top of the tunnel, on top of the wall plate, and then support the wall plate?

A. That is right. The reason for two or three timbers above the wall plate was due to the shape of the rings. You could hardly get any strength in that design, where it was so flat on the sides, and your posts took more of a down weight.

Q. When you got up to station 126+50 or 126+75, according to this gland or kidney that you referred to, as I understand it that was what you would call an intrusion, was it not, of some other material? A. Yes.

Q. Into the cherts? A. Yes.

Q. I think you said on one side of the tunnel as you passed through you passed through a lens of this material that was only two, or three or four inches thick, I don't remember what.

A. On the north side of the tunnel.

Q. On the north side of the tunnel. That would be on this diagram there?

A. Yes, as I remember it.

Q. And on the south side it was a couple of feet thick? A. Yes.

Q. It went through at an angle? A. Yes.

(Testimony of Victor G. Hindmarsh.)

Q. Is that correct? A. Yes.

Q. Something about like this, was it?

A. It followed along the [1593] tunnel on an angle, probably 30° slope, or something like that; it ran along the tunnel.

Q. Were the two places where you had the two inches wide and two feet on the other about opposite each other at the floor of the tunnel?

A. No, it was further along in the tunnel; it followed that lens quite a little ways in the tunnel, in the bench, before it went out of the tunnel.

Q. But where you crossed it at that time was the ground on the north side, was that nearer the west portal than the south side was?

A. As I remember it was.

Q. So that the general trend of this would be something of an angle like I am pointing here; I suppose that is a 25 or 30 degree angle, is it not?

A. I suppose so.

Q. It also tipped back so that the tip of it—I don't know which way it tipped—what do you know about it? A. It ran easterly.

Q. That is, the top was farther away than it was to the ground? A. Yes.

Q. And do you remember how high the lens was or how wide the lens was at the top of the tunnel in the center?

A. I don't remember the lens showing at the top of the tunnel; it may have, but I don't remember it.

Q. You would not say that it did not show?

(Testimony of Victor G. Hindmarsh.)

A. No, I would not say so.

Q. And after it caved in you found some material that you had seen in these veins as you passed through the formation, you found a piece of that, I think you said you left some boulders up in there?

A. Yes, that followed up higher in the tunnel, 40 or 50 feet. [1594]

Q. Was there anything about that material, as you went through, that suggested to you that you should take different steps to support that than you had at some other part?

A. No; not particularly. In fact, I had had just as bad, if not worse, ground further back in the tunnel where I had stopped the progress at the face of the tunnel for a week, while I concreted it, because the posts were moving. The posts were not moving as rapidly at this section as they were further back.

Q. But there was some moving here?

A. There was always movement in all the posts.

Q. The material you found there did not cause you to change your method of timbering or your method of holding the ground at that point, in any respect?

A. We put in some, I believe, 14 by 14's in the ring there,—stiffened those up a little.

Q. Made them larger?

A. Made them larger; made them larger than what we had been using.

Q. That is, to support the roof where this material lay? A. Yes.

(Testimony of Victor G. Hindmarsh.)

Q. You cannot say now what width this kidney had in the roof?

A. No; I could not tell you.

Q. Mr. Hindmarsh, I am going to ask you to look at these two diagrams. The one I am pointing to now is a diagram of the right portion of the tunnel,—the right side of the tunnel,—showing from the center line of the portion of the tunnel on the right-hand side from Station 126+50 to Station 127+75, showing the heading of the drift as it was on February 21, 1936; and the other diagram showing the other side of the tunnel,—similar diagram. If these two diagrams were taken and folded over a glass tube—

A. I understand.

Q. I am trying to explain this to the Court— If these two diagrams were taken and folded over a glass, so the edges came together, the top of the drawing of the tunnel would represent the entire [1595] interior of the tunnel, showing the timbers in the tunnel, and the other matters that are shown.

The Court: What is this side?

Mr. Tinning: That is the north side of the tunnel, coming up this way; the north side; and this is the right side, or south side, going up the tunnel.

Q. Mr. Hindmarsh, this diagram is made from the District's notes and measurements of timber taken to 7 a. m. on February 21st; and the man who made the measurement was in the tunnel at 3

(Testimony of Victor G. Hindmarsh.)

o'clock that afternoon, and that was apparently about 5 or 6 hours before you left the tunnel; I think you said you left about 8 or 9 that night?

A. Yes.

Q. Would you look at the diagram, and see whether,—referring now to the right-hand side—whether it appears to represent the location of the plumb post, with respect to the core face, as you remember it, at the time you last saw it?

A. Yes, it is probably approximately correct, so far as I can see now—nothing unusual about it.

Q. There is nothing unusual at all, you say? And, likewise, is that true of the left-hand side?

A. Yes, I believe so.

Q. That would be the north side of the tunnel?

Mr. Marrin: May I ask, Mr. Tinning: Was this blueprint made on the date it appears to have been made there,—February 21, 1936?

Mr. Tinning: No; it is the timber location. This has just been made from our notes, for demonstrative purposes and for this testimony, and for no other purposes; but the data that is on there, except as it appears upon some other date—for instance, there is "Approximate surfaces of the muck pile": that was put on,—the data from the morning of the 22nd; but the timbers are as they stood the last time it was measured by the District before the slide. They were measured on the morning of the 21st of February, at 7 a. m. [1596]

(Testimony of Victor G. Hindmarsh.)

Mr. Smith: The face of that core is an estimated position, is it?

Mr. Tinning: Yes. In other words, the face is taken from the measurement, and the bottom is run down, in about the same manner as the other cores that are actually put on there.

The orange line, which is marked "Core 7 a. m. February 19," indicates the line of the core at the time stated, on the 19th of February. The yellow line, which is next easterly, represents the core at 7 a. m. on the following day, February 20th; and the red line most easterly represents the position of the core as measured at 7 a. m. on February 21st; and these are all centers.

The Witness: They were approximate stations, also.

Mr. Tinning: Yes; taken in the tunnel as approximations; and this diagram shows that, at the time this measurement was taken, or after this measurement was taken, there was further excavation on the right-hand side of that tunnel, was there not, from the point where the core was, on the morning of the 21st, and where it was estimated to be on the morning of the 22nd? A. Yes.

Q. These dotted lines, which appear on the diagram, running from the floor line to the top, are the lines taken by the man who measured this—at which he saw the boundaries of the lens; and you will notice that it was marked at 126+85, and is leaving the tunnel at the top, 126+54, on the west-

(Testimony of Victor G. Hindmarsh.)

erly end, and toward the east at 126+71. Does that represent the conditions, or does that refresh your recollection as to the conditions, with respect to the position of the lens of material that you have referred to?

A. No; I don't think the lens runs that way. It did not extend so far in the crown. My remembrance of the lens was it went practically outside the tunnel at this point; and there was a long distance right here, where it caved in, that there was no sign of any of this muck. It may have come back up into the roof; I am not sure. [1597]

Q. Well, Mr. Hindmarsh, I am calling your attention, to get "this" into the record—you pointed to the area above the wall plate? A. Yes.

Q. You stated, as you recollected, the material you could discern had disappeared in the roof of the tunnel above the wall plate?

A. The material on the side. Like in here: it may have come out again in the roof; I am not sure. I did not notice whether it was up there in the roof or not; whether it was or not, I cannot definitely say.

Q. At any rate, it is your testimony that, above the wall plate and for some distance on the side of the tunnel, you believe it disappeared?

A. Yes.

Q. You could not see it; it was not visible? Now, on the other side of the tunnel,—the left-hand side, or the north side, of the tunnel—also, we have

(Testimony of Victor G. Hindmarsh.)

indicated by dotted lines, in the same manner, the lens of material which intersects the floor at about 125+97 or 98—was that about a fair estimation?

A. One hundred what?

Q. 125 plus— A. 125 or 127.

Q. Then I have made a mistake on that, because it is 126-plus about 48. A. Yes.

Q. 126+48.

A. I don't know what the scale is on that map.

Q. Past the most easterly portion of the lens, as shown on the map,—that was 126+71; and the most easterly portion of the top of the tunnel was 126+54. Would you say that those dotted lines are reasonably accurate representations of the appearance of that material on the north wall of the tunnel?

A. Yes, if it showed up there on the north wall of the tunnel at all, except down in—right in here on the bench,—this point here,—it went diagonally across.

Q. What do you mean by "the bench"?

A. This is the bench here.

Q. You mean where the plumb posts are below the wall plate?

A. Yes. As I remember, it started about there, —a very small lens,— [1598] and went directly across the face of the tunnel on about an angle, I would say, of 30 degrees.

Q. Well, it shows here at 126+48 on the north side, and 126+ about 80—isn't it? A. Yes.

(Testimony of Victor G. Hindmarsh.)

Q. That would be about 32 feet, wouldn't it?

A. More than that— Yes, that is right.

Q. About 32 feet?

A. A 45-degree angle, practically.

Q. About a 45-degree angle. So, the south side of that lens would be about 32 feet further toward the east end of the tunnel than the north side?

A. Yes.

Q. But you, again, are unable to recollect that there was anything that you could discern above the wall plate?

A. There was nothing there to indicate any trouble at all, that I remember of, on that side; it was very hard.

The Court: We will take a recess for a few minutes.

(Recess)

Mr. Tinning: If the Court please, we will offer in evidence, as Defendant's Exhibit K-4, the diagram which we have been using in discussing this matter with Mr. Hindmarsh, as being the right-hand side of the tunnel, and also as L-4, the diagram of the left side of the tunnel.

Mr. Marrin: Those will go in, of course, subject to our check?

Mr. Tinning: Subject to your check.

(The diagrams were marked, respectively, "Defendant's Exhibits K-4 and L-4.")

Mr. Tinning: Q. Mr. Hindmarsh, in order that we may understand exactly what this diagram is

(Testimony of Victor G. Hindmarsh.)

attempting to elucidate, I would like to show you what I have done here during the recess. I have drawn, on a piece of flat paper, something similar showing one of these dotted lines, — what these dotted lines show.

The Court: Isn't there a photograph here, showing that? [1599]

Mr. Marrin: Yes.

Mr. Tinning: Yes, your Honor. What I am trying to do with this— If turned over like this, we have one side of the tunnel; and the top line of the tunnel is the center line. If we put those two together, we would have, what I am showing here—

Q. That is a fair representation of what these two diagrams would do, if joined together in that manner, isn't it, Mr. Hindmarsh?

A. That would be probably what it indicates.

Q. Yes. Now, the photographs that your Honor spoke of are here, ready, as the next matter to be taken up.

I show you a photograph, looking west of Station 127+08.

The Court: Would that be looking down the tunnel?

Mr. Tinning: Yes, that would be looking down the tunnel.

Q. That was a photograph taken some time after the slide, and shows some of the intrusive material to which you have referred, does it not, Mr. Hindmarsh?

(Testimony of Victor G. Hindmarsh.)

A. I think it is—the white material is down here.

Q. Yes; and shows the cherts at the top of the tunnel,—one edge of this slide,—does it not?

A. As I view this photograph, I think it shows the easterly end of the cave-in. Is that right?

Q. Yes, I think so.

The Court: Pardon me. This is off the record.

(Discussion, off record.)

The Witness: That was taken some time after the slide.

Mr. Tinning: Q. At the time that you were getting ready to remove this material? A. Yes.

Q. After you had caught up your concrete wall? The point of the photograph, if the Court please, is that it shows the white lens of material in the roof of the tunnel.

The Witness: On the left-hand side.

Mr. Tinning: Q. Yes. Now, I will show you a photograph taken [1600] on the same day; and ask you if you are able to say where that was taken, Mr. Hindmarsh. It was taken on April 8, 1936.

A. It looks like it was taken practically from the same place. What is the date?

Q. April 8, 1936. It shows the space, does it not, in between the top of the slide and the roof, at that point?

A. Well, it shows— This is taken where this measurement is being shown—that is on the slope of the slide.

Q. Yes; the easterly slope of the slide?

(Testimony of Victor G. Hindmarsh.)

A. Yes.

The Court: They are identical, aren't they, only from the point taken?

The Witness: It looks to me as though they are taken at practically the same spot.

Mr. Tinning: The purpose of the measurement was to get distance, your Honor. We offer these two photographs, taken on April 8th, of the slide area at Station 126+95, as defendant's exhibit next in order. I think it is "M4-1 and 2."

Mr. Marrin: Which one is No. 1?

Mr. Tinning: The one without the measuring rod.

(The two photographs were marked, respectively, "Defendant's Exhibits M4-1 and M4-2.")

[Set out at pages 467 and 468 of the Book of Exhibits.]

Mr. Tinning: Q. Mr. Hindmarsh, when this cave-in occurred, you described how it occurred early in the morning and it continued throughout the day to fill in the tunnel; you said you thought it went up 35 or 40 feet into the top. You did not remove the material—all of the material out of the caved area; you drove— You put your spiling across there, and put in concrete, and then grouted in there, did you not?

A. No; we did not grout there, Mr. Tinning.

Q. What did you do, to fill that void?

A. Well, the void was filled; the cave filled the void; it caught itself up, and we tunneled [160] right through it, and left the loose ground above us.

(Testimony of Victor G. Hindmarsh.)

Q. Those boulders,—the white material you saw in the roof,—indicated they were some of the intrusive material above the top of the roof of the tunnel?

A. Yes, I think there was. I think the cave followed that.

Q. Followed that intrusive material up?

A. Yes.

Q. So, as you had driven through your tunnel, you would cut off the top of this kidney that was hanging up there in this cherts?

A. Well, I don't think that we did; I don't think we did that. I don't remember, but it may have shown some, in the roof; I am not sure whether it did.

Q. You stated you found boulders and white material?

A. Well, that came further up, after the cave-in. I don't know how far up in the tunnel; the kidney may have been 40 feet up above the tunnel, so far as I know, because those kidneys come in at any angle or any place.

Q. You ran into a good many similar formations as you went along, as you had gone along through the tunnel, before you came to this point?

A. Lots of them.

Q. So, it was nothing surprising or new to you by that time? A. No.

Q. When you were studying this estimate and the other matters which you have referred to, in

(Testimony of Victor G. Hindmarsh.)

1934, when you were with the W. A. Bechtel Company, you had knowledge of the geologist's report, did you not? A. Yes.

Q. At the time you were driving this tunnel, I suppose you had that same information in your mind?

A. Well, no; I had forgotten all about the geologist's report by that time.

Q. Did not pay much attention to it?

A. No; I didn't pay much attention to it.

Q. When you were driving?

A. No; because the ground was so much [1662] different than the geologist's report showed, I paid no more attention to it.

Q. Well, I am going to read you the first paragraph on page 16 of the geologist's report—it is Exhibit 22:

> "In driving through the cherts, the combination of crushed zones and water often present difficulties. The crushed rock (with or without water) may flow out into the tunnel almost like quicksand, or, if it holds together better, it may develop considerable pressure, until the water pressure is relieved by free flow into the tunnel. In the Claremont Tunnel the careful driving forward of spiling was necessary in the more broken and the crushed portions of the chert. In certain cases where a broken or crushed mass of rock lies within intersecting fault planes, and thereby loses its bond to surround-

(Testimony of Victor G. Hindmarsh.)

ing rock, it may slump down into the open working, leaving a chamber in the wall or roof."

Isn't that what happened here?

Mr. Marrin: Where are you reading on that page, Mr. Tinning?

Mr. Tinning: Page 16; the first paragraph. I read from the first of the paragraph down to the next to the last line.

The Witness: A. Yes. He said they might drop down. If they did, we should let them come down. We did, in this case.

Q. Intentionally? You left the boulders up there?

A. Well, we held some of them up there afterward.

Q. You changed your practice after you discovered what to do in the tunnel?

"If such unsupported blocks or masses are met, it would probably be best to let them down or remove them, before placing the concrete of the completed structure."

Well, from your last remark, do I understand, Mr. Hindmarsh, that you were trying to comply with Dr. Louderback's report?

A. No; I wouldn't say that. I was trying to hold it up. [1603]

Q. You made no change in your timber, at this point, other than, as I understand you to say, you placed 14 by 14's in this area, in the roof?

(Testimony of Victor G. Hindmarsh.)

A. Yes, as I remember it, we placed 14 by 14's in there; placed them in there for some little distance.

Q. And these matters which we discussed a short time ago, about shooting out sets in drifts at 126+50, 125+12, 126+35, do you think they had nothing to do with loosening the material in the roof of that tunnel?

A. No; I do not, because that was in the wall plate drift, and did not come anywhere near the roof.

Q. Well, Mr. Hindmarsh, it might have been in the wall plate drift; but the wall plate drift runs under a part of the roof? We will look at Plaintiff's Exhibit 42. Take the wall plate drift; that was pretty close to the roof,—the outside, upper corner of those drifts—aren't they?

A. I would say that is quite a ways from it, with solid dirt over the top.

Q. Well, I am referring just to the roof. I have always thought it was any part above the eaves.

A. I was taking the wall plate and the eaves, and going on up.

Q. What do you mean by the "roof"?

A. Well, it is from the face of the wall plate just about where it hits the top of the wall plate.

Q. Well, one side of a wall plate drift forms a part of the roof that we are talking about?

A. Well, it forms a part of that segment section.

Q. It is true, if explosions were permitted in a

(Testimony of Victor G. Hindmarsh.)

wall plate drift at Section 125+35 and Station 125+50, that they were in close proximity,—within 20 feet, or so, of this material shown on the diagram; isn't that true?

A. Well, the stations seem to coincide. That is all I can go by.

Q. Well, that is what we are working on at this time. And those [1604] explosions in this tunnel were sufficient so that the District Engineer wrote you, on the 28th of January, and called your attention to the fact that they seemed to be extremely heavy; he felt, from the report of the shots, that——

A. No; I don't think that had anything to do with it.

Q. How would you explain that?

A. That would be very easy to explain. Mr. Boggs's anxiety over the reports of the shots that he heard—that is not an unusual thing in a tunnel; the cause of it is never dangerous; that kind of explosion is never dangerous to a tunnel.

The Court: We can all agree it is not helpful, can't we?

A. Well, it does not hurt it. The reason for a loud report is, in driving a tunnel, you use delayed——

The Court: Yes, I understand.

A. —and one part of your first shot is required to take the load off the other shot; and when you get a loud report, it is the same in any tunnel, it

(Testimony of Victor G. Hindmarsh.)

causes a lot of air vibration, which causes the powder to explode in the air, first, and causes a lot of vibration; it does not hurt a tunnel at any time.

Q. Is this vibration all in the air?

A. It is all in the air, because the powder explodes in the air.

Q. A quarter of a mile away, it may shake the earth?

A. The earth doesn't shake, your Honor; when you have a tunnel, it is like inside a rifle barrel, you cause a heavy concussion of air there, and it comes out the face, and if there is anything like windows around there, it will shake them.

Q. It won't interfere with the earth?

A. Not a bit.

The Court: I am glad you corrected me on that.

The Witness: The shot really that does the damage in a tunnel——

The Court: I follow you; I don't disagree with you, but I [1605] would have been laboring under a delusion that the earth might shake——

A. No; it would not, in that kind of a job. It is like throwing a fire cracker up into the air; it makes a concussion, but it don't shake the earth. The thing that would do the damage in there is the dull thud——

Mr. Tinning: Q. What was it that blew the sets out in these drifts,—the air?

A. That may happen in any tunnel, because you may get a boulder right in front of a shot, which

(Testimony of Victor G. Hindmarsh.)

will take the whole load; and it will come out like a rifle ball; but that is not an unusual thing. That happens thousands of times in a tunnel. You can shoot timber out of some types of rock which come from behind and take the whole charge. [1606]

Q. It would not blow out all of the timbers in seven sets back of the draft face?

A. No, it does not take a big piece of rock to do that. That was only a temporary section, and that was before the permanent timber was put in.

Q. What about the ring sets that were blown out, was that air?

A. No, that was rock, a rock or boulder that had been taken out that was lying possibly over the charge that went off and that one boulder went up and happened to strike some segments and knock them out.

Q. Have you inspected the record of the explosive that was used within forty minutes before this cave-in occurred in the tunnel on the night of February 21 and the morning of February 22?

A. No, I have not.

Q. Would it surprise you to know that there was some 225 pounds of powder fired off in that tunnel about forty minutes before this collapse?

A. I don't know to that effect. If all of the rings in all of the drifts were shot and all the benches were shot, 220 pounds of powder would not be——

Q. (Interrupting) Would not be out of the way? A. Would not be excessive.

(Testimony of Victor G. Hindmarsh.)

Q. If there were 30 holes in the core face that night when that shot was fired about forty minutes before the collapse, would that have anything to do with it?

A. I don't know if there were 30 holes; I don't know how much powder was put in there. I was not there at the time of the shot, and I have not any record of just how many of the holes there were, because these holes changed on every round.

Q. If the inspectors of the District had a record of thirty holes would you think that was accurate or out of the way?

A. I would not know whether it was accurate or not.

Q. You know they kept a record?

A. I don't know whether he kept a record of the number of holes that were drilled, or the amount of [1607] powder. In fact, I am very doubtful if you have got any record of the amount of powder used.

Q. Would you like to see it?

A. You may have a record, but how it was kept is another proposition.

Q. Do you know a man named Hartwell?

A. Yes, I knew Hartwell.

Q. An inspector for the District. There was a man continuously in the tunnel at all times while the work was going on, Mr. Hartwell at times and Mr. Belcher at times?

A. Yes, there was an inspector on the job at all times somewhere around on the job.

(Testimony of Victor G. Hindmarsh.)

Q. You are not certain whether they kept a record of the holes that were drilled in the ground?

A. I doubt very much whether they did.

Q. Would you say that 30 was an unreasonable amount? A. No.

Q. You have already stated that 225 pounds of powder was likely to be the right amount?

A. No, I said that was used in drifts and in the rings and in the bench, if they shot all of those places at that time 220 pounds of powder would not be very far out of line.

Q. Mr. Hindmarsh, this morning there was introduced here as Plaintiff's Exhibit No. 92 a letter addressed to the Six Companies of California, dated April 16, 1936, which accompanied the diagram which you showed to Judge Roche, and discussed about wall plates, and rings, and wall plate drifts, etc. This was a letter from the Industrial Accident Commission to Six Companies, and I believe you said you received this letter. I would like you to consider the matters in the terminating paragraph of this letter: "Provision must be made against undermining the wall plates by the Bagley system of excavation, and also against over-shooting the side walls directly under the wall plates." It is true, is it not, that at various times the Industrial Accident Commission people had been in conference with you about the shooting under these wall plates?

A. No, that is not true. [1608]

Q. It is not true? A. No.

(Testimony of Victor G. Hindmarsh.)

Q. What was it that occasioned that letter of April 16, 1936, in which they warned you against over-shooting the side walls?

A. It was just a natural warning. I was in conversation with Mr. Reinhardt all through that job and I don't think he ever mentioned at one time to me that I was shooting too heavy.

Q. You think that when he put in about overshooting the side walls directly under the wall plates it was just out of an abundance of caution and that nothing had happened before that led him to put that warning in the letter?

A. I think that is right, it was a natural thing for him to write about.

Q. Mr. Hindmarsh, if I remember your testimony this morning you said at the time that this slide occurred that you thought the concrete was about 125 feet back. Was that from the core or from the place where the slide took place?

A. That was from the core. The reason I said that was because that was about the distance I kept the concrete at all times.

Q. Have you checked your record on it?

A. No, I have not.

Q. Would it surprise you to know that the distance from the core to the concrete was 234 feet on February 21 in the north tunnel?

A. I would doubt that very much unless the record showed it.

Q. Will you examine the document, Plaintiff's Exhibit 58 for identification, and perhaps one of

(Testimony of Victor G. Hindmarsh.)

your engineers can check that with you; but that is what an observation of that record shows, the face of the core, the total core was 127+07, and the concrete was, the easterly end of the concrete was at station 124+66, 234 feet. Have you got that?

A. If the record shows that that is true.

The Court: The witness testifies if the record shows that that is true.

Mr. Wittschen: Will it be stipulated that the record shows that fact? [1609]

Mr. Marrin: He is examining it.

A. The record seems to.

Mr. Tinning: Q. In other words, the record which Mr. Wilde is showing you indicates it was 225 feet from the toe of the core to the end of the concrete: is that correct?

A. Yes, the record seems to show that.

Q. Now, with respect to the concrete that was placed in the east portal, Mr. Hindmarsh, that was done during your administration of the work, was it not? A. Yes.

Q. You know there were two rings poured sometime after September, 1935.

A. Yes, I had charge of the pouring.

Q. What method did you use for pouring that concrete?

A. A Hackley gun, that is, we poured—most of it was poured with buggies, and there was a section right in the roof of the tunnel that was let out that was poured with a Hackley gun.

(Testimony of Victor G. Hindmarsh.)

Q. Did you ever see that concrete after the forms were stripped?

A. You mean at the westerly end?

Q. The westerly end of the concrete.

A. No, I could not see that, because it was buried.

Q. There was a bulkhead at the end of the form?

A. There was a bulkhead there.

Q. Would it surprise you to know it looked the way it shows in this photograph, at about 12 feet of the tunnel it ran from 4 inches thick at the westerly end back up to two feet?

A. That was right——

Q. Right in the top of the core.

A. Right in the roof, right up against the bulkhead?

Q. Yes.

A. That might have been the case, I don't know.

Q. That would not be what you would call good concrete, would it, 12 feet?

A. Yes, as far as the concrete was concerned, it was good concrete, but it is the presence of the hole that is not good.

Q. So when you have voids in concrete such as you had at the westerly [1610] end it was good concrete except where there was no concrete?

A. Yes, but a hole of this kind would not bother any because you catch it in the next pour in.

Q. If the earth did not catch it in the meantime?

A. If you poured right along you would catch it.

Q. You poured this in September?

(Testimony of Victor G. Hindmarsh.)

A. That was excavated for the first time at that point, the form was right against the earth.

Q. It was poured in September, 1935, and when you left the work on June 13 it was still remaining in that condition?

A. Well, it just had been excavated.

The Court: I want to clear this up. When was the next operation with relation to this?

A. There was not anything more done there until the tunnel came from the west end, with the excavation. This was right up against the excavation.

Q. The next part of this operation, the next pour.

A. Came right there.

Mr. Tinning: Q. That was from some other contractor when *he through* a year or more later?

A. Yes.

Mr. Tinning: We offer this photograph in evidence, if your Honor please, as Defendant's Exhibit in proper order.

(The photograph was marked "Defendant's Exhibit N-4.")

[Set forth in the Book of Exhibits at page 469.]

A. (Continuing) It is nothing unusual to leave a hole like that when you are using a Hackley gun; I used to do it all the time and shoot right into it on the next operation.

Mr. Tinning: No further questions.

Redirect Examination

Mr. Marrin: Q. Mr. Hindmarsh, the sagging in of the wall plates before the wall plate left the wall

(Testimony of Victor G. Hindmarsh.)

plate drift, that is before the core was excavated up to that point, would it do any harm?

A. No, it would not do any; when it came off the bench in the open [1611] it would just mean that you would shorten the plumb posts, but as long as the timber was properly wedged up against it it would not do any harm whatever.

Q. Your segments would be longer and your posts would be shorter, isn't that true?

A. No, it would not lengthen your segments, because if the wall plate settled it was due to pressure from the top, and the whole roof would probably come down; it might not even loosen a wedge——

The Court: It might come down uniformly?

A. It might come down uniformly and the weight on that wall plate would sag it.

Mr. Marrin: Q. Was the shooting used in these tunnels light or heavy shooting?

A. It was all light shooting as far as tunnels go, very light shooting.

Q. Much lighter than is often used?

A. Oh, yes.

Q. Now, as to the shape of this lens of material, Mr. Hindmarsh, I don't know that it was clearly brought out, but you said, I think, on your direct and cross-examination that it was about two feet wide at the wall plate line where it left the tunnel.

A. That is what I remember.

Q. And after the cave-in occurred did that appear to have widened out of the tunnel?

(Testimony of Victor G. Hindmarsh.)

A. Yes, this face of the tunnel where you could look back into the cave, you could see that it widened out into a kidney formation.

Q. That widening out was discovered when you were excavating the earth that was covered?

A. Yes, that was correct.

Q. Now, Mr. Tinning referred you to the paragraph in the geology report which said that the material might resemble quicksand. Did this material have any resemblance to quicksand?

A. No, none of the intrusion did.

Q. And at the point where the cave-in occurred did the material [1612] flow out into the tunnel?

A. No, the lens was quite hard; in fact, when it caved it caved in large boulders.

The Court: Wasn't there a running formation of some kind?

A. Well, when it caves, of course the cherts is laminated, anyway——

Q. But I mean the material away from the cherts, this white material that shows in the photograph.

A. It came out in big chunks, your Honor, in large boulders. You can see these boulders lying there.

Q. What is that?

A. That is in place. That is what is left after it caved. That is a cross section of the lens that is shown in place. That is not moving.

Q. Is that what you have in mind, material like that? A. Yes, like that.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: It was in place, as shown on this photograph.

The Court: You mean in place, in the natural way? A. That did not move, it was hard.

Mr. Marrin: Q. You stated in answer to some of Mr. Tinning's questions on cross-examination that so far as you know some of the sets might have been blown out in the wall plate drift. Were those simply temporary sets?

A. Yes, those were temporary sets.

Q. And would the blowing out of those sets, if it happened, have any effect on the strength of the permanent tunnel timbering?

A. No, none, whatever.

Q. They were subsequently all replaced with permanent sets? A. That is right.

The Court: Q. Do I understand that those that were blown out were temporary sets?

A. Going through the drift, every six feet we put in a temporary set and we follow behind that with a permanent set, in between each one of those.

Q. That is where the temporary sets were blown out the permanent [1613] sets were not in?

A. No, they were not in.

Mr. Marrin: Even if 240 pounds of powder was used in the shot a short time before this cave-in would you consider that was heavy shooting?

A. No, I would not. It depends, of course, on the size of the shot, how much ground you are moving.

The Court: And the material?

(Testimony of Victor G. Hindmarsh.)

A. And the material. As a rule, this ground only took about three-quarters of a pound of powder—as the record shows, about three-quarters of a pound per yard, which is very light shooting in any tunnel that has to be shot at all.

Mr. Marrin: Q. I think you said that the length of the hole had nothing to do with whether the shooting was heavy or light? A. No.

Q. These six-foot holes were the holes that were used next to the outside perimeter of the tunnel, were they? A. Yes, under the wall plates.

Q. And the 12-foot lifter holes were placed under the core after the rings and wall plates had been excavated? A. Yes, after that.

Mr. Marrin: I think that is all, if your Honor please. It may possibly be that after we have checked these exhibits over we would like to ask Mr. Hindmarsh a question or two further on redirect examination.

The Court: Very well.

HOMER MERRITT,

called for Plaintiff; sworn.

The Court: Q. Where do you live?

A. 9923 Beach street, Oakland.

Q. What is your business or occupation?

A. Well, at that time I was working at the tunnel, at this time I am in a coal yard in Oakland.

[1613A]

(Testimony of Homer Merritt.)

Q. In business for yourself? A. Yes.

Mr. Marrin: Q. Mr. Merritt, at the time of the cave-in on February 22, 1936, you were employed by Six Companies of California, were you not?

A. Yes.

Q. And in what capacity, what were you doing?

A. I was chuck tender.

Q. Were you on duty at the time this cave-in occurred? A. Yes.

The Court: You might find out what a chuck tender is.

A. That is a miner's helper, that does everything.

Q. He is a handyman around? A. Yes.

Q. He does the heavy work for the miner?

A. Yes.

Mr. Marrin: For the purpose of making the record clear, I would like to offer for illustration purposes a diagram which is on the easel, as Plaintiff's Exhibit next in order.

(The diagram was marked "Plaintiff's Exhibit 97.")

Q. Now, referring to this diagram, Plaintiff's Exhibit 97——

The Court: Q. Do you understand the diagram? Can you see that diagram there? A. Yes.

Q. If there is anything you do not understand about it you ask the attorneys and see that they do not confuse you after you get started.

Mr. Marrin: Q. You have seen this diagram before? A. Yes.

(Testimony of Homer Merritt.)

The Court: The only thing I have in mind is, a witness is many times called to the stand and shown a diagram and does not understand it, and I thought it well to ask him if he understood it.

A. I think I understand it.

Q. You are in doubt about it?

A. This would be the face of the core, here, and this would be the drift.

Mr. Marrin: Q. Yes, and this is the shovel, and the hoist jumbo you see. A. Yes.

Q. Will you show us, Mr. Merritt, on this diagram where you were [1614] standing at the time the cave-in occurred?

A. I was standing right there.

Q. What were you doing there?

A. I was flagging the Bagley.

Q. That is the scraper?

A. That pulls the dirt out of the drift, and drops it over the core, and the man that operates it was out on here, and I was flagging this man out here when to stop here and drop the dirt and when to send the Bagley back in again at the time of the cave-in.

Q. Will you state what happened, what you did just before the cave-in?

Mr. Tinning: Which drift is that shown on the diagram?

Mr. Marrin: Is that the drift on the south side of the north tunnel?

A. The south side of the north tunnel.

(Testimony of Homer Merritt.)

Q. I will mark with an "X" on Plaintiff's Exhibit 97 the place where Mr. Merritt said he was standing. Now, what operation was being carried on at the time the cave-in occurred, Mr. Merritt?

A. Well, the crew was going off and another crew was coming on, I went on at 11:30, and we were taking the dirt out into—this would be an open space here, just ahead of the rings, and we could not drop the dirt over at the time because they were putting certain new posts under the wall plate face, and we could not drop any dirt over that face, so we pulled the dirt back and piled it in here while they were setting these posts, and they had hollered "O. K." down, and I had kicked the dirt down, and they called for slack, they loosen the cable from the Bagley, and the steam shovel was setting in here getting ready to muck the dirt and put it over when all at once I could not see anything between here, in fact, it came just like that at the time.

Q. Did it come without any warning?

A. It came without any warning, as far as I could see, it came just like that. I immediately [1615] ran back in and told the shift that the cave came down.

Q. As far as you could observe prior to the cave-in, did the timbers appear to be in good shape?

A. As far as I observed I saw nothing wrong with them; I was practically looking at them between the spot where the cave was and where the jumbo set up, practically all the time.

(Testimony of Homer Merritt.)

Q. There was nothing prior to the cave-in to warn you that it might be going to cave?

A. Not a thing.

Q. Now, then, I am going to extend in pencil the coming out of the wall plate, just about that way, as I have drawn in pencil there. As I understand you, just prior to the cave-in the posts under the wall plate had been set up close to the core?

A. That is where we piled the dirt up, waiting for them to set the post.

Q. That operation had been completed prior to the cave-in?

A. They had hollered "O. K." and I had mucked the dirt down in the bottom to be taken out by the steam shovel and loosened the Bagley, when the cave-in came.

Q. How did you get out of there?

A. Well, it did not come back, there was a slope, plenty of room back over the core, it was open where the cave did not come, and I immediately ran out, my boy was working in the drift on the opposite side, and I ran over the top of the core, that is where it had not fallen, and warned him to stay in the drift, and a lot of them did run out through the fallen rock, and then I stayed in there and there were two boys walking on the catwalk, two muck boys that came in on the catwalk, in the middle of the tunnel, just as the cave came; one of them made a lunge and landed on the core, and the other one went down with the timbers and went under there,

(Testimony of Homer Merritt.)

I judge, about seven feet deep, down under this mass of timbers and rock, and we could hear [1616] him hollering down there, you could see his legs, he was just hemmed in, he was not hurt very bad, and was just pinned in so he could not get out, and we proceeded to throw big timbers from this side, on the back side of the cave, and, of course, more crew came in, and we pulled big timbers in, and Mr. Garrett and my boy and I were down trying to dig him out from underneath these timbers, and we had him just about ready to carry out when there was a big segment which dove right down over his breast, and I went to pull it out, and in backing out from under this, that is when I got the scar which is on my head when I got hurt and I was carried out. That is about all I remember from then on.

Q. Referring to the diagram which is on the right part of Plaintiff's Exhibit 97, this place where I will mark the "X" is the drift in which you were standing, is it, Mr. Merritt, just before the cave-in?

A. On the right-hand, right in the mouth of the drift.

Q. The cave-in came at about a point opposite the shovel?

A. Between the jumbo and the mouth of the drift. The shovel set just a little bit to the side of the wall plate.

Q. And you jumped down here and came out around this side?

(Testimony of Homer Merritt.)

A. Well, I finally came out, but I just went over the ring to the other drift, but I did not go out until they carried me out.

The Court: Q. Did your boy get hurt?

A. No, he was not hurt. He was under these timbers.

Mr. Marrin: Q. You went on duty that night at 11:30 p.m.? A. Yes.

Q. Was there any shooting done while you were on that shift?

A. The shooting, if I remember, was done by the crew coming off and then we went on, as I remember it; I don't remember that there was any shooting while I was on shift.

Q. Your recollection is, then, that the last shot was fired before 11:30?

A. The crew coming off usually always shoot and the [1617] crew coming in do the mucking up.

Q. This cave-in occurred about 2:30 in the morning? A. Well, about 2:30 in the morning.

Mr. Marrin: You may cross-examine.

Cross Examination

Mr. Tinning: Q. How do you fix the time?

A. Well, I know it was getting pretty near time to eat.

The Court: Q. What time was it you went on?

A. At 11:30.

Mr. Tinning: Q. At 11:30 you went on, and you figured it was about meal time the time this accident occurred?

(Testimony of Homer Merritt.)

A. It was just a little bit before lunch.

Q. Did you have a watch with you?

A. No, I did not have a watch with me at the time.

Q. Did you hear any shooting in the other tunnel while you were working there that night?

A. I could not recall that I heard any in the other side because they were shooting. I did not pay much attention to that. [1618]

Q. You did not pay much attention, during the different operations? A. Yes.

Q. In feet, how far back from where—from the toe of the slope, or from where you were standing in the drift, was it to the place you say you saw the cave come in?

A. Oh, I should judge it would be back about—from the first I seen, I judge it would be back about 20 feet to as near as I seen it occur, you know, between the Jumbo and the face. The Jumbo was next to the face——

Q. Well, was it about opposite the shovel?

A. Well, it come just a little bit toward the face from the shovel, as near as I could judge.

Q. In other words, somewhere about where I am pointing now?

A. Yes, somewhere about in there, I judge; about where it come from; I judge it come from about the "B" posts.

Q. That would be the "B" segment; that would

(Testimony of Homer Merritt.)

be the two sections,—the second section over the wall plate?

A. Yes; somewhere up in that corner; looks like it come to me.

Q. That was the first thing you saw here, was this segment, say, 6 to 8 feet above the wall plate?

A. I didn't see any segment in at all; all I saw was a mass of rock coming like that.

Q. You heard no cracking of timbers; your attention was attracted to it by the dust and turmoil you saw coming out of the side of the south—the south side of the tunnel, 6 or 7 feet above the wall plate?

A. No. It would be more than that. The "A" post was——

Q. 7 feet, was it? A. I could not tell you.

Q. Well, approximately?

A. Well, approximately around that; and the top of the "B" post——

Q. The top of the "B" post; that was two segments up?

A. Then it would be the one that goes over to the cap; somewhere in that area in there, where it looked to me like it come from.

Q. Did it drop down and cover the shovel over right away?

A. Well, I couldn't see, from my side; it was covered when I could see it; the side I was on was covered.

(Testimony of Homer Merritt.)

Q. In other words, immediately after the first run of material came, then the timbers cracked all the way around, falling down in there?

A. Well, the timber practically came ahead, with the dirt; it all come just together.

Q. Did the timber, all the way across to the north side of the tunnel, come down?

A. Well, now, I didn't look at the other side exactly to see what it did, because I left right there.

Q. I imagine this was a pretty exciting moment. There was nobody seriously hurt there?

A. Well, I don't know how seriously you call it, right at the time of the cave.

Q. Well, you were injured, as you have described; but you recovered completely?

A. No; I was not—it was the other boy that was covered. I was down, coming out, when I got hit. I was not covered there. A big rock come down and cut me across the head.

Q. You did not understand me. I say: You have recovered completely?

A. No; I have not; I am rather hard of hearing.

Q. You receive compensation from the Contractor?

A. I received a settlement from the insurance company.

Q. The other man recovered—has he?

A. Well, so far as I know; I have never seen him from that day to this.

(Testimony of Homer Merritt.)

Mr. Tinning: Thank you.

The Court: Q. How long have you followed tunnel work?

A. Oh, I have been, off and on, at it ever since I was eleven years old; I worked in the coal mines down South when I was a boy.

Q. Down South where? A. West Virginia.

The Court: We will take a recess until tomorrow morning at ten o'clock.

(Thereupon, an adjournment was taken until Friday, May 6, 1938, at 10 o'clock a. m.) [1619]

Friday, May 6, 1938
10 o'Clock A. M.

The Court: You may proceed, gentlemen.

E. F. HALL,

called by plaintiff; sworn.

Direct Examination

Mr. Marrin: Q. Where do you reside, Mr. Hall? A. Burlingame.

Q. What is your occupation?

A. I am an engineer right now.

Q. You have done surveying work? A. Yes.

Q. When did you first commence doing surveying work?

(Testimony of E. F. Hall.)

A. When I attended college, I would do it in my summer vacations; about 1923, I think, I started.

Q. You have followed that work, have you, since?

A. Intermittently, except for a period of about four or five years.

Q. Were you engaged or employed by Six Companies of California in connection with the construction of the Broadway Low Level Tunnel?

A. I was.

Q. When did you go to work with Six Companies of California?

A. It was the latter part of April or first of May, I think, 1935.

Q. How long did you continue in the employ of Six Companies of California, Mr. Hall, thereafter?

A. Until the tunnel was closed down in June the following year, I believe.

Q. What were your duties with Six Companies of California?

A. To furnish lines and grades for driving the tunnels.

Q. There is, on the easel, a line drawing from which I would like to have you illustrate your testimony, for the purpose of getting it in the record.

The Court: Q. Are you familiar with that diagram? A. Yes.

Q. What is it? Describe it, for the purpose of the record.

(Testimony of E. F. Hall.)

A. It is a plan showing the section of one of the tunnels, with the wall plate drift system. [1620]

Mr. Marrin: May I offer that as plaintiff's exhibit next in order, so that we may have an exhibit number on it?

Mr. Tinning: No objection.

(The diagram was marked "Plaintiff's Exhibit No. 98.")

Mr. Marrin: The witness is referring to Plaintiff's Exhibit 98, in his testimony.

Q. Would you go ahead and explain to the Court, Mr. Hall?

A. This is just a plan of a tunnel, with two wall plate drifts, and showing about where the core would be.

Q. This part of——

A. This is the drawing——

Q. This part of the drawing represented by the part marked "Core," Plaintiff's Exhibit 98, is a complete tunnel; the excavations have been completed? A. Yes.

Q. The part to the right of that point would be the wall plate drift? A. Yes.

Q. Would you take the pencil, Mr. Hall, and draw in there, to illustrate to the Court, just the operations you performed in setting the lines and grades?

A. Well, we put our lines and grades in there every day. In order to get those in, it necessitated

(Testimony of E. F. Hall.)

going back in the tunnel from two to three hundred feet back of the core.

The Court: Q. What is the center line?

A. From the core. The District had monuments in; and I had to go up, on these monuments, bring that line up and then offset again up on the drift, and keep the points and the headings up on the monuments.

Q. There is one thing that confuses me. In going ahead in those drifts, could you tell which way you were going? How could you tell that?

A. Well, that is where the surveying comes in.

Q. That is what I do not understand. Will you tell me about that?

A. Well, you set the instrument up on that monument, and backsight on another monument, and plunge a line in, and put in a hub; then—I forget the distance there; but, say, 12 feet: you turn right [1621] angles and put another one, and then back in the tunnel and put another one over here, and then set up here and look back and you could plunge that line ahead.

Q. What do you use—your eye?

A. No; with an instrument; a transit; set the transit up here.

Q. What does the transit do?

A. It is a surveying instrument,—an instrument used in surveying.

Q. Well, when you drift and you drift ahead, say, 50 feet, how do you get your center?

(Testimony of E. F. Hall.)

A. By using these lines; you use parallel lines; you set up here; and when you sightback here—the transit—you clamp this on here, and then just turn it over and you have it in the same place.

Mr. Tinning: Q. At the same angle?

A. At the same angle.

Q. So you get a straight line? A. Yes.

The Court: Q. Follow out that line you made,—a straight line.

A. Yes; offset here, and the drift would be up here; it would be——

Q. Yes, I follow that now. Proceed.

Mr. Marrin: Q. If I understand you, you have set the transit on this point, and come back here and get the transit in a straight line?

A. You set the transit here, and then you sight on this point; and then you move over.

Q. Then you swing your transit over, and that gives you the same line? A. Yes.

Q. That is set up here?

A. It requires another setup; you necessarily set up here, and set up near the face of the tunnel—not the face, but just at the start of the drift.

Q. If I understand you correctly, Mr. Hall, each day, on the drift, you come back to these monuments. How far were those monuments, from the face of the core?

A. I believe they run from two to three hundred feet.

Q. In the fully excavated part of the tunnel?

(Testimony of E. F. Hall.)

A. Yes. [1622]

Q. Then, each day, you would run this line up here two or three hundred feet to about the core; run it over to each side, and then project those lines ahead in the drift?

A. Well, it did not require it each day.

Q. Not every day?

A. No. Every other day.

Q. Every day. How long were those drifts usually ahead of the core?

A. Well, I should say around 100 feet.

Q. Then you set a line here, as a result of that work, which would indicate the line along which the drifts should be constructed ahead of that?

A. That is true. That was my work: on the line and grade, and to furnish that in the drifts.

Q. Those lines and grades which you set were at the end of the drift?

A. To the timber set line behind the drift, yes.

Q. Did you also set a grade in there?

A. The grades were all set, each day; timber sets.

Q. In the drifts? A. Yes, sir.

Q. It was necessary for the men to use those lines and grades, in order to know how to proceed with the construction of those drifts, was it not?

A. Absolutely.

The Court: Q. The beginning point is the monument? Who furnished the monument.

A. The District furnished the monument.

Q. That was your starting point?

(Testimony of E. F. Hall.)

A. Yes, sir.

Mr. Marrin: Q. The District furnished these monuments; but they did not furnish anything except those monuments; is that correct?

A. Yes.

Q. All the rest of this work was done by the Contractor? A. That is true.

Q. How many people were in your surveying party? A. I had two assistants.

Q. Besides yourself? A. Yes.

Q. You did part of the work yourself?

A. I ran the instrument [1623] and did all the calculations.

Q. How many times were you in the drifts—I mean, on the average, a day?

A. Well, I was in each drift each day, and sometimes twice a day.

Q. The lines and levels were run in each drift, were they not? A. Yes.

Mr. Marrin: You may cross-examine.

Mr. Tinning: No questions.

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Vol. VI

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

SIX COMPANIES OF CALIFORNIA, HARTFORD ACCIDENT AND INDEMNITY COMPANY, ET AL., PETITIONERS,

vs.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR CERTIORARI FILED JULY 22, 1940.

CERTIORARI GRANTED OCTOBER 14, 1940.

NO. 9113

United States

Circuit Court of Appeals

For the Ninth Circuit.

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

Transcript of Record

In Eight Volumes

VOLUME VI

Pages 1987 to 2368

Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

PARKER PRINTING COMPANY, 545 SANSOME STREET, SAN FRANCISCO

DeLANCEY C. SMITH,

called by the plaintiff; sworn.

Direct Examination

Mr. Marrin: Q. Mr. Smith, when were you first employed as an attorney by Six Companies of California?

A. In March of 1935.

Q. Did you represent the Company in negotiations with the defendant District?

A. Yes, I did.

Q. In connection with your representation of the Company, did you have a conversation with Mr. Boggs, on April 3, 1935?

A. I had several conversations with Mr. Boggs at different times, and my notes show that one of them was on April 3rd.

Q. Where was that conversation held?

A. At the office of the District, in Mr. Boggs' private room.

Q. Who was present?

A. Mr. Boggs and myself.

Q. No one else? A. That is correct.

Q. What was said at that time?

Mr. Wittschen: Objected to as immaterial and calling for hearsay, and attempting to bind the District by statements which are not binding upon it.

Mr. Marrin: If the Court please, this is the same type of testimony that has been objected to before,

(Testimony of DeLancey C. Smith.)

and, if the Court please, our purpose in showing this is to show that the decision regarding [1624] the extension of time was not based on bona fide judgment of the Engineer. We have a case which is directly in point on the admissibility of this kind of testimony. It is the case of Mayor and City Council of Baltimore versus Ault, cited in 94 Atlantic, page 1044. In that case, there was a question of whether the decision of the engineer on the extension of time and the deduction of penalties was made in good faith; and the contract in that case contained a provision to the effect that to prevent disputes and litigation the harbor engineer shall in all cases determine the amount, quality and acceptability of the work which is to be paid for under the contract, and shall determine all questions in relation to the work, and the performance thereof, and shall in all cases decide every question which may arise relative to the fulfilment of the contract on the part of the contractor. His estimate and decision was to be final and conclusive; and in case any questions arise between the parties touching the contract, such estimate and decision shall be a condition precedent to the right of the contractor to receive any monies under the contract.

The Court will remember we have a very similar clause in this contract.

> "Time Required.—Bidders must state the number of consecutive working days required to complete the work. A working day shall

(Testimony of DeLancey C. Smith.)

consist of eight hours of each and every day except Sundays and holidays as set aside by the national government, the Governor of Maryland, or the Mayor of Baltimore. If it is raining too hard at 8 a. m., in the judgment of the Engineer, to permit work, such day shall not constitute a working day. In computing the lapsed number of working days, no allowance for bad weather or other delays not covered by the preceding clause, will be made, unless claim for exemption has been made within 48 hours of the time the delay occurs. The Contractor must begin the work within 15 days [1625] after notice to do so, and must complete the work within the time specified. Should the Contractor fail to complete the work within the time specified, he shall forfeit to the City as liquidated damages, and not as a penalty, the sum of $25 for each and every day which may elapse between the limiting date and the completion of the work."

Deductions were made because the contractor failed to complete the work. The Contractor contended it was impossible, without an extension of time, and the Engineer's decision was not made in good faith. In connection with that contention, the Court said:

"In the case now under consideration the specifications, in order to prevent disputes and

(Testimony of DeLancey C. Smith.)

litigations, provided that the harbor engineer 'shall determine all questions with relation to said work, and the performance thereof, and shall in all cases decide every question which may arise relative to the fulfillment of the contract on the part of the contractor.' One of the provisions of the contract to be fulfilled by the contractor was that the work was to be completed within 150 working days; and it is clear that the harbor engineer was authorized to decide whether that provision had been complied with, and, in doing so, to determine the number of days for which they were entitled to credit, in order to decide on how many working days they were engaged in the work. He could not, of course, deprive the city of the benefit of the stipulation in regard to liquidated damages, or withhold from the contractors credit for any delays for which they were not responsible. These rights were secured to the city and to them by the contract. But he was authorized to decide what delays the contractors were subjected to and the extent of those delays, otherwise he would be unable to decide whether the contractors had fulfilled the contract." [1626]

The Court then goes on to state his decision may be set aside for bad faith and no intent to defraud need be shown,—simply bad faith. In that connection, the Court says:

(Testimony of DeLancey C. Smith.)

"To constitute bad faith it is not necessary, however, that the decision of the person to whose judgment the matter is submitted shall be the result of a malicious and deliberate purpose to defraud or deprive a party to the agreement of the benefit of the contract. The agreement in this case was to submit the matters within the terms of the submission to the decision of the harbor engineer, and not to the judgment of any other person. His honest decision, however erroneous, would be binding upon the parties, because the contract makes it so, but nothing short of that would gratify the terms of the agreement, and any decision which was not his judgment, but the mere expression of his views, or the influence, whether intentionally or innocently exercised, of others, would be outside of the contract and without force."

Then the Court said, in reviewing the evidence:

"While it does not contain any evidence of collusion, corruption, or fraud on the part of the harbor engineer or other city officials, it was sufficient to go to the jury upon the question whether the estimate made by the harbor engineer of the number of working days the completion of the work was delayed was in fact his decision."

(Testimony of DeLancey C. Smith.)

Furthermore, the Court held that statements of the engineer on the question of delay were properly submitted. On page 1054 of the decision, the Court said:

> "In the first, second, sixteenth, seventeenth, and eighteenth exceptions the witnesses were asked to state conversations they had with the harbor engineer. The evidence elicited by these questions was admissible as tending to show the opinion of the engineer as to the fact, extent, and causes of the delays claimed by the [1627] plaintiffs, and as reflecting upon the question whether his estimate of the number of working days the plaintiffs were engaged in the work was his decision of the matter."

Now, our position here, if the Court please, is simply this: That the decision, turning us down on the extension of time, was not the decision of the Engineer at all; did not reflect his judgment, but was made because of the fact that the plaintiff in this case had presented claims for damage against the District, and it asked for an adjustment, and that the District did not grant the extension of time, perhaps because it feared, by admitting those claims, or for some other reason—but that we were entitled, regardless of any controversy or any claims existing between the parties, to the unbiased and honest judgment of the Engineer in this case as to whether we were entitled to an extension of time; that we

(Testimony of DeLancey C. Smith.)

did not get that honest and unbiased judgment; and we think we are entitled to show, by expressions made by the Engineer, that it was his opinion that we were entitled to an extension of time in this case, and that he did not exercise an unbiased, fair judgment, which is necessary to sustain a decision of any arbitrator or any engineer that has the powers conferred upon him by this contract; and it is for that purpose we offer this evidence.

Mr. Wittschen: It is not a question of the Engineer acting as an arbitrator. It is a question as to whether, in his opinion,—his honest, sincere judgment,—an extension of time should be recommended. The contract in this case provides an extension of time shall be made by the contracting parties, not by the Engineer; and you remember the clause that, where they were delayed by stormy or inclement weather, or any other matter which, in the opinion of the Engineer, produced delay on the work—I assume they would have a right to show that; and, if that is the purpose, if the [1628] Court please,—to show that the Engineer acted arbitrarily—in other words, I think that is within the issue. If that is the purpose,—to show they were arbitrary acts,—I take it I should not press the objection at this time.

Mr. Wittschen: Exception. [1629]

The Court: Q. You had a conversation with the engineer?

(Testimony of DeLancey C. Smith.)

A. I think the question was directed to the first conversation.

Mr. Marrin: Yes, the first conversation of April 3, 1935.

A. Yes, at that conversation it was principally a matter of my getting acquainted with Mr. Boggs; I had never met him before, and I called at his office for the purpose of getting acquainted with him, and advising him that I would be somewhat in touch with the performance of the contract from that date forward, and that we had several problems which we hoped to work out mutually with him as the engineer. I told him, for one thing, that I had not finished my examination of all the facts yet, but it did seem to me that the contractor was entitled to an extension of time, based on the rainy season which had delayed outside work, and based on difficulties which I understood had been encountered in handling the job at the west portal. We also discussed other matters which are not now here involved in this case. I told Mr. Boggs that if after a further investigation it seemed to me that the contractor was entitled to an extension of time I would like to file an application for such an extension, and he said in substance, in reply to that, that he did not think that it was advisable for the contractor to ask for any extension of time at that particular time, because of the fact, first, that it was premature, because the contractor would not know until further on in the performance of the contract

(Testimony of DeLancey C. Smith.)

whether or not he could complete the contract within the time called for by the terms of it. Secondly, he said he did not approve the granting of an extension of time to a contractor as a general matter if it could be avoided, because the contractor would perhaps then, if he was given time, dilly-dally and play along with the job and not work as hard as he should. I pointed out to him that I considered it was a rather foolish [1630] presumption, because the contractor must work as hard and fast as possible in order to make any money, the sooner he gets through the more money he makes. The discussion was friendly in tone and that was about all that was said then.

Q. Did you have any other conversation with Mr. Boggs shortly thereafter?

A. Within two or three weeks thereafter, I think the exact date was about the 15th or 16th of April.

Q. Where was that conversation held?

A. It was likewise held at his office.

Q. Who was present?

A. Mr. Boggs and myself.

Q. Will you state what was said?

A. Well, in substance I told him that I had further examined the question of time; we discussed some other matters which are not here involved—and that I felt the contractor should file an application for an extension of time based on what I discovered, and he said that while he thought the contractor was entitled to some time based on the

rainy season, that he would not feel that he should file an application for extension of time at that time. That was the sum and substance of what he said. I told him at any rate, I would have to advise the contractor to do it, as perhaps it might be argued that he was waiving his claim for an extension if he did not.

Q. Did you, on or about November 19, 1935, have a further discussion with Mr. Boggs concerning an extension of time?

A. Well, I had a later conversation before November with him about the same subject, at the meeting of the directors of the District, on June 10, 1935, when I was present, and I wrote an application to the directors for an extension of time, and after the meeting Mr. Boggs told me that the District would deny it, but that the denial would be purely on the ground that it was premature, and that while he felt we were entitled to some extension, he was not [1631] going to pass on the question then.

Q. What was the next conversation you had with Mr. Boggs respecting an extension of time?

A. The next conversation I had with him was in November, at the tunnel office, and there were present Mr. Bechtel, Mr. Hindmarsh, myself and Mr. Boggs, as I have already testified.

Q. What was said at that time?

A. Well, the meeting lasted probably an hour and a half or two hours; I did not do much talking at the meeting. Some other questions were dis-

(Testimony of DeLancey C. Smith.)

cussed that are not involved here, but one of the principal questions that was discussed was the question of an extension of time. Mr. Hindmarsh told Mr. Boggs that the contractor should be given an extension of time by reason of the cave-in of August 28, and the delay that had resulted to the work. Mr. Boggs stated in substance that he agreed with that position, but he did not know how much time he would feel that the contractor was entitled to. Mr. Hindmarsh said he thought probably 90 or more days, perhaps 120 days. Mr. Boggs stated that he did not think that perhaps it was that much, but perhaps 60 days would be about right, but he would have to look into the matter before he would fully agree on it. We then worked out a program with Mr. Hindmarsh, by conversation, which provided that Mr. Hindmarsh would furnish him, Mr. Boggs, with a completely new schedule of work sometime after the first of the coming year, and that that new schedule would give Mr. Hindmarsh's best judgment as to how long it would take to complete the entire job in the contract time. Mr. Hindmarsh and Mr. Boggs agreed by interchange of words that when that construction schedule was submitted that Mr. Hindmarsh would then prepare a letter, filing it, and asking for the necessary time to complete the job, and Mr. Boggs said he would be prepared [1632] and try to agree on that feature.

Q. Is that all you recall of that conversation?

A. No, there was another element in it, and it

(Testimony of DeLancey C. Smith.)

was this: Mr. Boggs said in so many words that any letter which was submitted should be put on non-controversial grounds, that he did not want any issue raised that might cause friction between the Board of Directors and the contractor, and he also said that he felt the contractor might need some time that was not now known about, because there might be heavy spring rains in 1936 that might further delay the work, particularly the outside paving work, and therefore it would be advisable to try and agree on a program early in the coming year.

Q. Is that all you recall of that conversation?

A. That is the sum and substance of it.

Q. Now, Mr. Smith, who was Mr. H. L. Hinman?

A. He is one of the directors of the district.

Q. And also treasurer of the district?

A. Yes. The district has three directors, Mr. Stow, who recently died, Mr. Hinman, and Mr. Caldecott.

Q. Did you ever have any conversation with Mr. Hinman about the matter of extension of time?

A. I had several. I have known Mr. Hinman for a good many years, and he came to my office four or five times in the summer of 1935.

Q. Can you state the date of the first conversation with Mr. Hinman, where it was held, and who was present?

A. I took a memorandum off of my office record

(Testimony of DeLancey C. Smith.)

of calls that gives those dates, if I may be permitted to use it.

Q. Surely.

A. The first time he came to see me was on April 2, 1935.

Q. And just the two of you were present?

A. Yes, in my office.

Q. What was said at that time?

Mr. Wittschen: Objected to as immaterial, and calling for hearsay, [1633] and not binding on the District, being matters beyond the control of a director, to be determined by the engineer and not by the treasurer of the district. The action of the Board could only be the action of the Board as it appeared in the minutes.

Mr. Marrin: There has been an issue raised in this case which is stated very clearly in Mr. Wittschen's opening statement to the effect that plaintiff in this case, by not rescinding when the application of June 10, 1935 was filed, waived the right to rescind on account of the denial of the application for the extension of time. We propose to show by this testimony that Mr. Hinman, the treasurer and director of the district, told Mr. Smith that that denial was simply a formal denial and meant nothing, and that later the district would grant sufficient time to complete the work, and I think that that has a very strong bearing on that issue.

The Court: As a matter of law, how could an

(Testimony of DeLancey C. Smith.)

individual, he being the treasurer and one of the directors, bind the other two directors of the District?

Mr. Marrin: Perhaps he could not legally bind the District acting as an individual, but I think that the statement of the officers of the district which tended to mislead the plaintiff in its decision are entitled to be shown here, particularly where the defendants are taking the position that by not properly rescinding when that application for extension of time was made that the plaintiff lost any rights.

The Court: I will give you a record on it.

Mr. Wittschen: I can give your Honor a case squarely on that point, that an individual treasurer or individual director could not legally bind the district.

The Court: The reason I have indicated that is I want both [1634] sides to have a record. I do not want to mislead either side. I will allow a record on it. Note an exception.

Mr. Wittschen: Note an exception.

A. Very little was said at the very first meeting that I had about the question of time. We had a friendly discussion, I had known him for many years. The discussion was more general than specific about the tunnel project. However, I did mention to him that I would like to talk with him further, and he said that he would be glad to talk with

me, although he was not sure it was a proper thing, and I told him he was a public official, and we had a perfect right to talk to him as a public official, because he was acting in his capacity as such when I was talking to him, and I was not trying to prejudice his actions in any way. I saw him later in June, on the 5th of June, and in July, on the 15th of July, and in August, on the 7th.

Q. Who was present at those conversations?

A. All three conversations that I have just mentioned were held in my office in the Balfour Building in this city. Mr. Hinman came to see me—

Mr. Tinning: What were the dates of those three last conversations?

A. They were June 5, July 15, and August 7.

Mr. Marrin: There were four, April 2, June 5, July 15 and August 7, all in 1935.

A. Yes.

Q. At all of those conversations just you and Mr. Hinman were present?

A. Yes, they were held in my own office and he came into my office alone. As a matter of fact, once or twice he came on a legal matter that I was handling for a group of which he was a member.

Q. Will you state what was said at that conversation?

Mr. Wittschen: The same objection, on all of the grounds stated.

The Court: The same ruling.

Mr. Wittschen: Exception. [1635]

(Testimony of DeLancey C. Smith.)

A. The sum and substance of them—it is difficult for me to recall what was said at any specific conversation in exact words, but the sum and substance of the three conversations was that particularly, the one of July 15, that the communication that the Board of Directors had sent to the contractor denying their application for an extension of time was solely on the ground it was premature and that later in the event Mr. Tinning and Mr. Boggs recommended he would vote to grant us time, as he felt we were entitled to it. That was the sum and substance of it.

Q. That was the substance of the conversation?

A. Yes.

Mr. Marrin: You may cross-examine.

Cross Examination

Mr. Tinning: Q. Mr. Smith, when Mr. Hinman came to your office did you state that you were representing him in connection with a group of other men?

A. I had been doing some work for a committee of which he was a member.

Q. In connection with the reorganization of the Merchants Express Company, of which he had formerly been chief owner?

A. No, at the time I speak of he was no longer connected with that.

Q. But it was in connection with a Merchants Express matter, was it not, that he was seeing you?

(Testimony of DeLancey C. Smith.)

A. No, it was in connection with another matter of which that was a purely collateral matter.

Q. What was the matter?

A. He was a member of the Bondholders' Committee of the United American Utilities, Inc., and I was attorney for the Bondholders' Committee.

Q. The United American Utilities was the company that purchased the Merchants Express?

A. Many years before that.

Q. Mr. Hinman had taken some of the securities to pay for his interest in the Merchants Express? A. To his sorrow.

Q. And all of the rest of the bondholders?

A. Yes. I was representing [1636] the Bondholders' Committee. I want that to appear in the record. I had nothing to do with the organization of the company or with the taking of these securities by Mr. Hinman.

Q. We will accept the exoneration clause. The point that I have in mind here, now, Mr. Smith, is that Mr. Hinman was not going to your office to discuss the district matters with you, he was going to your office to discuss a business matter in which you represented a committee of which he was a member?

A. No, that is not entirely true. I can clarify your mind on that very quickly. The matter had been cleaned up by the time that 1935 rolled around, except for the possibility that what he had taken

(Testimony of DeLancey C. Smith.)

for the bonds that he had exchanged in the reorganization might be changing status as to value; he wanted to keep posted, and would come in and ask me a question; that would take five minutes.

Q. So that he did not come there to call upon you and discuss district business as the district representative? A. Once he did.

Q. What was the date?

A. I would say that was the next to the last time I have testified to.

Q. By that you refer to July 15, 1935?

A. That is correct, so far as I can remember.

Q. Are you sure of that?

A. I could not be absolutely positive that we did not mention the other business, but he came, and I am positive that he came to me once, because he wanted to talk to me about the problem of the contractor on the Broadway Tunnel.

Q. He knew from sometime in June, at least June 10, 1935, that you were representing the contractor? A. He knew it in April.

Q. He knew it in April? A. Yes.

Q. At the time of your first conversation of April 2? A. That is correct.

Q. I believe you said that the second conversation you had with Mr. [1637] Boggs was about the 16th or 17th of April, in Mr. Boggs' office.

A. My memorandum diary from our office records shows it was on the 16th of April.

(Testimony of DeLancey C. Smith.)

Q. Have you any memorandum of the conversation? A. No.

Q. That is, your office diary has a note that you were at Mr. Boggs' office on April 16, 1935?

A. That is correct.

Q. You are testifying from memory as to what was said? A. That is absolutely correct.

Q. Does your office diary show that on the 10th of April, 1935, you had a conversation with Mr. Boggs and myself, in your office in the Balfour Building, at which time Mr. Marrin was also present?

A. It probably does, but I think that was at Mr. Marrin's office, I think that the meeting was at his office.

Q. Do you remember that we came down to your office, and at that time there were three matters under discussion, one the matter of wage scale, reclassification of labor, reclassification of the wage scale in an attempt to meet the same situation that the Six Companies or some constituent company had experienced on some other job where there had been some confusion, and you desired to have it more specific, what you might call an intermediate scale?

A. That is not an exactly correct statement, but it is approximately correct. The fact is that the definitions in the wage schedule provided by the dis-

(Testimony of DeLancey C. Smith.)

trict were not accurate for the proper compensation of the men in accordance with their duties, and we desired to reclassify them.

Q. In your opinion?

A. Well, we established we were right, because you altered the scale to conform to our request.

Q. Kindly stick to the facts, we did not give you a letter in the form requested. At the same conversation, Mr. Smith, do you remember the matter of extension came up, and Mr. Boggs told you [1638] that the answer was no on engineering and extension?

A. My recollection of the conversation, is fairly clear, and as I recall it one of the subjects was classification of the labor, and the second our point on running lines and grades; I do not recall any discussion of an extension of time at that conversation.

Q. You have no memorandum?

A. I have no memorandum of the conversation. I have a memorandum of the date.

Q. But not of the conversation? A. No.

Q. You stated that the conversation that occurred on the 19th of November, 1935, at the west portal building, was—at which Mr. Hindmarsh, Mr. Price——

A. (Interrupting) I did not say Mr. Price was there.

Q. You are correct, Mr. Hindmarsh and Mr. Bechtel and yourself and Mr. Boggs were present?

A. Yes, that is right.

(Testimony of DeLancey C. Smith.)

Q. That was on the 19th of November?

A. That is correct.

Q. You say you did not say very much? That is correct, too, is it not?

A. Well, I tried not to.

Q. Mr. Smith, is it not a fact that you asked what had happened in regard to the 48-hour wage authorization?

A. I might have. I do not say that I did not.

Q. Isn't it a fact that you received an authorization the next day, the day following?

A. I may have. That is not here involved.

Q. Well, I am going to get the full conversation, Mr. Smith, if I can, to refresh your recollection. Isn't it a fact that Mr. Boggs told you at that time that he had notified Mr. Price by telephone immediately upon receiving the authorization from Mr. C. H. Sweetser, the District Engineer of the Bureau of Roads, and that he would send a copy of the letter of Mr. Sweetser at once directed to the Six Companies?

A. That is very possibly correct, I would not say it is not. [1639]

Q. It is a fact, it is in evidence here as one of the exhibits, a letter that was addressed to Six Companies by Mr. Boggs on the same day, November 19, 1935, that was received on the 20th by Six Companies. A. I don't know.

Q. You don't remember the record? A. No.

(Testimony of DeLancey C. Smith.)

Q. Do you remember, then, that Mr. Bechtel and Mr. Hindmarsh then discussed the reopening of drift excavation and the question was then discussed as to whether the 43-hour week would apply in driving further in the tunnel?

A. I remember there was a discussion about resumption of operations, both as to the method, manner and time.

Q. And at that time Mr. Boggs stated that he understood the orders from the P.W.A. office authorized the 48-hour week on the recovering of the tunnel, and when that was done and the concreting was done all other work would have to be done under the 40-hour week?

A. I wouldn't say that last part, but I want to say it was generally understood, and if it was discussed at that meeting it was substantially correct; I have not a clear recollection that it was mentioned at that time.

Q. Then do you remember that Mr. Bechtel said to Mr. Boggs an application for an extension of time would be necessary by the Six Companies and you said that Mr. Boggs said last spring that the application was premature and an extension might be necessary, and asked if Mr. Boggs still held that opinion. Do you remember that?

A. Well, that question includes too much. I remember a portion of it.

Q. What do you remember?

(Testimony of DeLancey C. Smith.)

A. I remember that it was mentioned, by whom I do not recall.

Q. Whether you said it or someone else, that is a correct statement?

A. I do not recall who said it, but the way it came up was substan- [1640] tially this. Mr. Boggs said during the earlier part of the year that we were premature in asking for an extension of time at that time, because we did not know then how long it might take us to complete, and that was the reason why they had turned us down.

Q. And that an extension might not be necessary?

A. And if that were true an extension would not be necessary to enable us to complete within the time fixed, or the extended time which might be granted.

Q. And do you remember whether you or Mr. Bechtel asked Mr. Boggs if the opinion that he at that time had was still held by him?

A. I imagine it might have been said, I would not say it was or was not said. But this conversation lasted quite a long time, from about 10 a. m. to noon, and a lot of talking was done.

Q. Do you recollect that in response to that question Mr. Boggs replied that he still considered that an application at that time would be premature and further, for the information of the contractor, that any application for an extension of time must be approved by the P.W.A.?

(Testimony of DeLancey C. Smith.)

A. No, I do not recall that being said, and in that connection my recollection of what was said is quite different, because there was a specific understanding reached that Mr. Boggs would cooperate with Mr. Hindmarsh in the filing of an application based on a new construction schedule to be submitted in January, and on an agreed form of letter which they would draw and on which we agreed in connection with the handling of that schedule.

Q. You told us that before. Now, with respect to the particular matter that I have just referred to, do you remember at that time Mr. Boggs stated that he still considered that an application for an extension of time was premature, and that any such applica- [1641] tion must be approved by the P.W.A.?

A. He might have said that, but in saying it, if he did say it, he also said he would have no difficulty in getting cooperation from the P.W.A. on anything that he put in.

Q. So if he said that, he said something else, too, that I have not asked?

A. He supplemented it with the comment I have just made.

Q. Do you remember that you then asked Mr. Boggs whether his recommendation would probably be followed by the P.W.A.?

A. That is bringing out the point I just mentioned.

Q. Did he say that to you?

(Testimony of DeLancey C. Smith.)

A. It probably was said; it might not have been said in those words; I did not put down in detail what was said by A, B, C or D.

Q. Then did you state to Mr. Boggs that in view of the erroneous geology, unforeseen difficulties in the ground, that the request might easily be granted?

A. Yes, I recall, now that you mention it, that I did state that the fact that we had different ground conditions than were represented alone justified an extension, and Mr. Boggs, in reply to that, suggested that we avoid asking for an extension on that ground, because it would create a dispute between the contractor and the district, probably, and he thought he could get it through without raising that point.

Q. Did you at that time and place, in that conversation, following your statement that Mr. Boggs —do you remember that Mr. Boggs said to you that such matters had already been discussed and acted upon and that his recommendation was still no?

A. He did not say any such thing. He said just the opposite of that. At no time did he say that.

Q. Isn't it then true that you then stated to Mr. Boggs that you realized his technical decision might be no, but that it might [1642] be possible to change that decision?

A. No. Mr. Boggs and Mr. Hindmarsh conducted 99 per cent. of the conversation about extension of

(Testimony of DeLancey C. Smith.)

time, and the sum and substance of it was just as I stated it.

Q. Did you send any company memorandum through that you thought the district engineer was weakening at this time?

A. I do not quite understand that question.

Q. Do you remember Mr. Price's memorandum saying he was softening at this time?

A. I do not remember the Price memorandum. If you will show it to me, I will tell you.

The Court: Softening up, was it not?

Mr. Tinning: Yes.

The Court: I thought I remembered something to that effect.

Mr. Tinning: I think it is the memorandum of December 26th.

Q. Did you write a memorandum to the company on this conversation?

A. I don't recall whether I did or not. It was discussed fully orally. Mr. Bechtel and I left the conference and came to San Francisco and Mr. Bechtel showed me the letter that he wrote Mr. Hindmarsh the following day.

Q. Was there anything in the letter about the District Engineer softening or weakening?

A. No. I think that letter was offered here in evidence.

Q. That is the one that is in here.

Mr. Marrin: The letter, I think, is not an ex-

(Testimony of DeLancey C. Smith.)

hibit. I think it was read into the record. That is my recollection.

Mr. Tinning: It is in evidence at any rate.

Mr. Marrin: It had to do with lines and grades.

Mr. Tinning: It had nothing to do with the extension.

Mr. Marrin: That is right.

A. Well, the colloquy between counsel is not concerning the matter that Mr. Tinning asked me about. I have referred to a letter writ- [1643] ten by Mr. Bechtel to Mr. Hindmarsh after this particular conversation.

The Court: The following day?

A. Yes, the following day.

Mr. Tinning: That is in evidence, and it has been testified that Mr. Hindmarsh was instructed to prepare a schedule of proposed work.

A. But it says nothing about lines and grades which was just discussed between counsel.

Q. It says nothing about time, either?

A. I think it does, read in the light of what had been said the day before between the parties involved, it certainly refers directly to the time.

Q. Did you state to Mr. Boggs at the time that you realized that his decision, his technical decision, might be no, but it might be possible to change his decision?

A. I never said any such thing. He did say he was in accord with the right of the contractor for an extension at that time, but said he could not

(Testimony of DeLancey C. Smith.)

agree on the exact time. That was the only limitation he placed on his answer.

Q. Didn't he state to you at that time and place from all possible viewpoints his answer was still no for any reason that had been suggested?

A. He did not say any such thing; he said exactly contrary thereto.

Q. Isn't it true that Mr. Bechtel said to Mr. Boggs he thought Mr. Boggs ought to be able to cooperate with them in fixing up some good reason for an extension?

A. Well, Mr. Bechtel and Mr. Boggs both discussed that any application for an extension which might be filed after January 1st, as was discussed earlier, should be upon grounds which they would have to figure out were proper, which avoided the issue which he, Mr. Boggs, felt was to be controversial, namely, the deviation of the ground condition from that represented, and it was along that line that that subject was mentioned.

Q. Do you remember that after the commencing of the discussion of [1644] this proposed letter requesting an extension Mr. Boggs stated to you that there were enough representatives in the Six Companies organization to prepare their own letter?

A. No, Mr. Boggs was not taking a supercilious or saucy attitude; he was very much of a gentleman. I think that would have been an offensive remark.

Q. You would think that suggestion was saucy?

A. If he said that it would have been, but he

(Testimony of DeLancey C. Smith.)

did not say it; he said it in a joking way, it was perfectly harmonious.

Q. Didn't Mr. Boggs then state that he thought that a new schedule of operation should be prepared by the contractor, and that he would probably write a request for one?

A. Does your question bear the implication that that exact language was used?

Q. I am asking in substance and effect.

A. Well, in substance and effect it was agreed that a new construction schedule would be submitted. I do not recall any mention that he would write and ask for it, but it was agreed that it would be submitted.

Q. Mr. Smith, I asked you if Mr. Boggs did not suggest that a new construction schedule be submitted?

A. I would not want to say who was the author of the suggestion; it might have been Mr. Boggs and it might have been Mr. Hindmarsh, or it might have been Mr. Bechtel.

Q. Then didn't Mr. Bechtel state the Six Companies would file one about January 1, after they had resumed driving, and knew about what rate of progress they could make?

A. I think in substance that was said, but it was said by Mr. Hindmarsh, as I remember.

Q. Isn't it true that Mr. Bechtel then told Mr. Boggs that Six Companies would start in driving drifts ahead in the tunnel in the next few days?

(Testimony of DeLancey C. Smith.)

A. I do not think it was said by Mr. Bechtel; if it was said I think it was said by Mr. Hindmarsh.

Q. And as soon as the debris was cleared out the down-grade tunnel [1645] they would start in ringing out in the other tunnel?

A. I don't remember the exact detail of what was said as to the next move in construction.

Q. Isn't it true at that time Mr. Bechtel advised Mr. Boggs that Mr. Hindmarsh was in charge of the tunnel work, and requested Mr. Boggs to address all of the letters with respect to tunnel work to Mr. Hindmarsh?

A. Well, I knew that was a fact. I don't know whether it was said or not, it might have been said.

Q. That Mr. Price was still project manager, but would be absent from the work from time to time?

A. That might have been said. I do not say it was not.

Q. And then that Mr. Boggs requested a letter from Six Companies authorizing the District to address communications to Mr. Hindmarsh, in view of the previous letter as to who was in charge of the work that had been sent to him by Six Companies?

A. That might have been said. I do not say it was not. [1646]

Mr. Tinning: Q. Isn't it true that Mr. Bechtel stated that he thought Mr. Boggs should write di-

(Testimony of DeLancey C. Smith.)

rectly to Six Companies, Incorporated, and let them route their mail as they saw fit?

A. I did not hear your question.

(Pending question read by the reporter.)

The Witness: A. No; Mr. Boggs never said any such thing.

Mr. Tinning: Q. Then, is it true Mr. Hindmarsh discussed some of the details of construction with Mr. Boggs, and Mr. Boggs asked him to take them up with the resident engineer,—Mr. Gelston?

A. There was some discussion of the construction details; but I did not pay a great deal of attention to that, because they were talking about something I did not know much about.

Q. Then, isn't it true Mr. Boggs drove you and Mr. Bechtel to the Key Route train at 40th and Broadway? A. Well, I think he did.

Q. During the drive down with him, Mr. S. D. Bechtel stated to Mr. Boggs that they hoped,—Six Companies hoped he would discuss freely with them any problems which might arise? Do you remember that part of the conversation?

A. He may have said that; but I don't think——

Q. During that——

A. (Continuing) —it wouldn't be noteworthy, and I wouldn't have made much note of what we were talking about in the automobile.

Q. By "making note," you mean in your head, in your memory?

(Testimony of DeLancey C. Smith.)

A. Well, I have a clear recollection of what occurred. We were talking about the big football game on the following Saturday, going down in the car.

Q. By "making note," you mean things that you have kept and paid attention to, and remembered; or did you keep written notes?

The Court: Mental notes.

The Witness: A. Mental notes I am talking about.

Mr. Tinning: Q. Do you recollect that, as the conversation [1647] closed and you were leaving the car, Mr. Boggs asked Mr. Bechtel as to what status Mr. O. W. Peterson would have on the job, in view of Mr. Hindmarsh having charge of the tunnel?

A. I don't recall Mr. Peterson's name was mentioned in any of the conversation, except at the tunnel office; it came up in connection with some of the suggestions he had made as to construction methods.

Q. Mr. Smith, how long have you been Mr. Bechtel's attorney?

A. How long have I been Mr. Bechtel's attorney?

Q. Yes.

A. I have never had that distinction.

Q. Have you ever represented the W. A. Bechtel Company?

A. I represented them once, about ten years ago,

(Testimony of DeLancey C. Smith.)

in the absence of Mr. Thelen and Mr. Marrin—a small matter.

Q. How long have you represented, prior to the 3rd of April or the 2nd of April, 1935, any one of the constituent companies or individuals who form the constituent companies of the plaintiff in this action,—Six Companies of California?

A. I represented Mr. Charles A. Shea, who was an individual at the time I represented him—or, rather, a member of a partnership, which later became a corporation; and I first began to represent him in the summer of 1925, in connection with the construction of the East Bay Municipal Utility District, for which he and another concern got a contract as to a large portion of the work.

Q. The evidence here shows, Mr. Smith—I will try to shorten this—that, when the conversation that you say occurred on August 7, 1935, between yourself and Mr. Hinman, Six Companies had already written its letter to the District dated July 26, 1935, in which it made various claims with respect to the work and extension of time.

A. Yes. I don't think there is any question about that.

Q. You knew about that?

A. I think I wrote the letter.

Q. Yes. I thought so. So, when you say Mr. Hinman had been in [1648] your office on the 7th of August, 1935, it was at a time when the District had already received your letters which stated that

(Testimony of DeLancey C. Smith.)

if they did not receive a reply—the Contractor did not receive a reply by the 7th of August, that you were going to take legal action against the District?

A. That was only on the question of lines and grades; and that legal action would possibly have been declaratory relief, which we were considering filing at that time.

Q. It was not so mentioned in the letter?

A. Well, certainly legal action includes declaratory relief.

Q. Yes, I will agree with you on that. But the words "declaratory relief" were not mentioned in the letter? You had no reply from the District on August 7, 1935?

A. The letter was signed by the Company. Whether the Company got a reply, I don't know.

Q. Well, you have been here for some time; you have not seen any reply to that letter, have you?

A. My recollection of the record is that no reply has been made and the testimony so shows.

Q. And there was no action?

A. No action; no.

Mr. Tinning: That is all.

The Court: We will take a recess.

(Recess)

Mr. Smith: Your Honor, I am sorry I did not get a chance, before the recess, to state to the Court that the plaintiff in this case comes to a logical

(Testimony of DeLancey C. Smith.)

pause in the nature and character of its testimony to be hereafter produced, which I was expecting to put in through my questioning. The remainder of our witnesses are semi-expert in character; they are experts, but they are also on facts; and we did not anticipate they would be reached this week, and they are not available; and, if it is agreeable to your Honor, we would appreciate an adjournment, so long as you are going to [1648] adjourn, anyway, for a couple of weeks until you return from your proposed Sacramento trip. I understand the defendant has no objection.

The Court: How many witnesses have you?

Mr. Smith: We have probably four more, your Honor; and we will gain time by this adjournment, because their testimony will be shortened by the fact that we will have time to consult with them before they testify; and we would like, therefore, to suggest an adjournment at this time until after your return from Sacramento.

The Court: Well, then, the case will go over until the 24th.

Mr. Smith: The 24th of May at ten o'clock a. m.

The Court: Yes.

(Thereupon, an adjournment was taken until Tuesday, May 24, 1938, 10 o'clock a. m.) [1649]

(Testimony of DeLancey C. Smith.)

Tuesday, May 24, 1938;
10 o'clock a. m.

The Court: You may proceed, gentlemen.

Mr. Wittschen: In this matter, if the Court please, a few days ago we were served with a printed copy of a memorandum of points and authorities by the plaintiff entitled "First Supplemental Brief." For the convenience of the Court, we have made a reply thereto, but having made our authorities in looseleaf form we felt it would be more convenient if we merely added some supplemental pages to that so your Honor's secretary could insert them in the proper place, and we have also redrafted the last page of the index because of that change in the brief.

J. PAUL ST. SURE,

called by the plaintiff; sworn.

Direct Examination

Mr. Marrin: Q. What is your occupation, Mr. St. Sure? A. Lawyer.

Q. Were you employed in that capacity by the plaintiff in this case,—Six Companies of California? A. I was.

Q. About when were you employed?

A. Beginning in February of 1936.

Q. Have you been continuously in the employ of the Company since that time? A. I have.

(Testimony of J. Paul St. Sure.)

Q. Did you ever discuss with Mr. A. B. Tinning, one of the attorneys for Joint Highway District No. 13, the defendant here, the subject of the District granting to plaintiff an extension of time within which to complete the performance of the work under the contract between plaintiff and defendant for the construction of the Broadway Low Level Tunnel? A. I did. [1650]

Q. When did you discuss this matter with Mr. Tinning?

A. My recollection is it was either the 5th or 6th of May, 1936.

Q. Where was the discussion held?

A. At Washington, D. C.

Q. Who was present?

A. I believe, just Mr. Tinning and myself.

Q. Will you state what was said by you and by Mr. Tinning at that time?

Mr. Wittschen: Objected to as immaterial and calling for a conversation which does not bind the District, or at least does not tend to disclose any arbitrary acts of the Engineer. It is specifically provided in the contract that extensions of time may be granted by the Board of Directors and that they shall be granted for certain reasons which are set out, or any other acts or circumstances which, in the judgment of the Engineer, would delay unnecessarily the work. A conversation between two attorneys representing the parties would be immaterial.

(Testimony of J. Paul St. Sure.)

Mr. Marrin: We offer this to prove, by the witness, that prior to the filing of the last application for extension of time Mr. St. Sure discussed the matter with Mr. Tinning, and Mr. Tinning told Mr. St. Sure in advance that the application would be denied; and we offer it for the purpose of proving that the Engineer in this case never exercised any judgment or discretion at all with respect to this application, but that the defendant's attorney had stated, in advance of making the application, that it would be denied.

Mr. Wittschen: What the defendant's attorney stated if the Engineer were not present would not bind the Engineer. If he had a conversation with the Engineer, I would not object to it.

Mr. Marrin: It would be binding on the District.

Mr. Wittschen: Not necessarily.

The Court: It may go to the representative's state of mind [1651] and subject to correction that it could not legally bind the Engineer; there may be some question as to the judgment of the representative of the District. I will allow it subject to a motion to strike out and over the objection of counsel.

Mr. Wittschen: Note an exception.

The Witness: May I have the question read?

(Pending question read.)

The Witness: A. Well, I stated to Mr. Tinning that we had received a communication from California, calling to our attention the fact that it might

(Testimony of J. Paul St. Sure.)

be necessary to apply for an extension of time before the 24th of May, 1936; that I felt we should make such application for extension; that I should advise him of it since he was on the ground in Washington. My recollection is he stated to me we could make such application or do whatever thing we felt would necessarily amply protect our rights, but the application would be denied. He stated that he felt the Six Companies were entitled to an extension of time, but just what that extension would be he did not know; he felt it best, from the District's point of view and his point of view, to deny the application in its entirety, that we should not be concerned with the fact of denial, because there would not be deductions made for extensions beyond the time but that the matter could be adjusted at the conclusion of the work, or the conclusion of the relationship, and he felt the District was amply protected by the withheld percentages without the necessity of any determination being made immediately, or determining at that time the question of how much of an extension should be granted. That, as I recall it, was the conversation, or the substance of it.

Q. I show you, Mr. St. Sure, a copy of Exhibit "SSS," which has been introduced in evidence in this case, and which is the application for an extension of time dated May 8, 1936. Did you prepare [1652] that application? A. I did.

Q. Following your conversation with Mr. Tinning? A. Yes.

(Testimony of J. Paul St. Sure.)

Q. The application is for an extension of 600 days. Will you state, according to your best recollection, how that amount was arrived at?

Mr. Wittschen: Objected to as incompetent and immaterial and in no way binding on the District and as self-serving. The exhibit speaks for itself. They asked for 600 days.

The Court: The ultimate fact is they asked for 600 days.

Mr. Marrin: Is the objection sustained?

The Court: The objection will be sustained at this time.

Mr. Marrin: Note an exception. You may cross-examine.

Cross Examination

Mr. Tinning: Q. Mr. St. Sure, where did this conversation that you referred to occur?

A. My recollection is that it was at the Shoreham Hotel.

Q. In Washington, D. C.? A. Yes, sir.

Q. As a matter of fact, it was on the last day that I was in Washington, was it not?

A. I think that is true, yes.

Q. That was the 8th of May, 1936?

A. I would not be sure of the date. It was just before you left, as I recall it.

Q. At that time, who was present at the conversation?

A. My recollection is that you and I were together; nobody else was there.

(Testimony of J. Paul St. Sure.)

Q. Mr. Boggs, the District Engineer, was not present? A. He was not.

Q. Was any other representative or employee of the District, or any officer of the District present? A. No, sir.

Q. They were all in Oakland; I was the only one in Washington?

A. I assume they were in Oakland. You were the only one there [1653] that I remember.

Q. I was the only representatve of the District in Washington at that time?

A. So far as I know.

Mr. Wittschen. We, at this time, make a motion to strike out the conversation as related by Mr. St. Sure with Mr. Tinning in Washington, D. C., on the ground it is not binding on the Engineer, who was not present, and it was not binding on the Board of Directors of the District, who were not present and who were at home. Assuming the conversation took place, Mr. Tinning was not authorized to make any such statements on behalf of the Board of Directors or the Engineer.

The Court: I will allow the record to stand at this time. You may renew your motion if it becomes necessary.

Mr. Wittschen: Exception.

Mr. Tinning: Q. Mr. St. Sure, isn't it a fact that we were in Washington at that time on the basis of an effort made by yourself,—representing Six Companies of California, and Mr. Kaiser, who was president of the Company at that time, at the time in question,—and the District, to work out some

(Testimony of J. Paul St. Sure.)

method that would be mutually agreeable and also that could be worked out for the settlement of the claims of the Contractor which had been made in July and August, 1935, wherein they claimed additional compensation for what they claimed to be extra work? A. Yes.

Q. There were numerous conferences after you became the attorney for Six Companies in February, 1936, between yourself and myself and representatives of the District and Mr. Kaiser and other representatives of Six Companies?

A. That is correct.

Q. And that, at the time that you have referred to, Six Companies had stated that they had a claim in excess of a million and a half dollars against the District for extra work?

A. I wouldn't [1654] recall the figure, but I recall there was a claim.

Q. Do you recall a document that was printed, with photographs and a suede cover and a dramatic story of the difficulties of the Contractors, and that was delivered to Mr. Thomas MacDonald, Chief of the Bureau of Public Roads, after we arrived in Washington? A. Yes, sir, very well.

Q. Also to Colonel Westbrook of the WPA?

A. Yes.

Q. Also to Mr. Berlew, the Assistant Secretary of the Interior under Mr. Ickes, who was Administrator of the PWA? A. Yes.

(Testimony of J. Paul St. Sure.)

Q. That book embodied a statement in which there is a claim up to that time——

A. Yes; right.

Q. One million, seven hundred seven thousand odd dollars?

A. If it was stated, I assume it is. I don't recall it exactly. In the appendix, the statement appears that the original estimated cost was $4,195,000, and the probable cost was $6,630,100. I assume that is what you refer to.

Q. Yes.

A. That statement appears in the booklet.

Q. Yes.

Mr. Tinning: Mr. Marrin, may I ask you this question—maybe my understanding was not accurate: There were actually two parts to this document. I do not care to put it in evidence, or offer it, gentlemen, as I think it will simply clutter the record, but if you wish——

Mr. Marrin: No; I don't think it is necessary.

Mr. Tinning: Q. You wrote a part of this, did you not, Mr. St. Sure?

A. Yes; I assisted in the preparation of it, Mr. Tinning.

Q. This conversation that was had with respect to the extension of time occurred after the statements of Mr. Kaiser to Mr. MacDonald in connection with this claim made to Mr. MacDonald at the time that [1655] Mr. Kaiser was seeking to see if there would be additional Government funds to take care

(Testimony of J. Paul St. Sure.)

of the claim of the Six Companies, that the claim of Six Companies was somewhere in excess of one million seven hundred thousand dollars?

A. You say my conversation with you was after the statements that Mr. Kaiser made to the Government?

Q. Yes.

A. I do not recall the statement you refer to. I do recall that the statement was made to Mr. MacDonald and others that there was a claim which was in the neighborhood of two million dollars or thereabouts. The conversation I had with you was probably after those statements were made, yes, because you have recalled to me it was the last day you were in Washington that I talked with you about the extension of time.

Q. And it was at the time that we had our conversation,—about the time we had our conversation; there were no further meetings or conversations between yourself and myself after this instance that you have referred to?

A. Only one telephone conversation that I recall while I was still in Washington and after you had returned.

Q. So, there were no further conferences at which I was present when Mr. Kaiser made any statements to any Government officers or bureaus represented by any Government officers in which he sought to get more money for the claim of Six Companies from some Government body?

(Testimony of J. Paul St. Sure.)

A. After you left Washington, you were not present at any further conversations in Washington.

Q. The object of Mr. Kaiser going to Washington and you going to Washington was an effort to get additional money from the United States to pay the claim of the Contractor if that could be worked out?

The Witness: Would you repeat the question?

(Pending question read by the reporter.) [1656]

The Witness: A. That was a portion of the reasons for going, yes.

Mr. Tinning: Q. Isn't it a fact, during the conversation you have referred to, that you stated to me that someone in California had sent on word at that time the contract time for completion would expire shortly and they were suggesting an extension of time be requested?

A. I believe it was suggested, yes.

Q. And I told you at that time I could see no reason one way why you should prepare any extension of time if your claims were justified, and if they were not, you would be taken care of anyway?

A. My recollection is, Mr. Tinning, that the statement was made that undoubtedly we were entitled to some extension of time.

Q. Well, of coure, there is a sharp conflict of memory on that.

A. I assume there is. You asked me to restate my conversation with you?

(Testimony of J. Paul St. Sure.)

Q. No; I have not asked you to restate it. I am cross-examining you, Mr. St. Sure.

A. Pardon me.

Q. Isn't it true, at that time, that I stated to you that I thought the District Engineer would not recommend an extension of time; that undoubtedly it would be denied?

A. I don't recall the District Engineer being mentioned. My recollection is you stated the application would be denied.

Q. Do I understand your testimony to be that I told you that you were entitled,—Six Companies was entitled to the extension of time?

A. My recollection is you stated undoubtedly we were entitled to a portion of the time. Just what that portion would be, you did not know.

Q. In connection with what was that statement made?

A. Well, in connection with the statement I had made to you that we were applying [1657] again for an extension of time, to protect our rights.

Q. While I was representing the District and Six Companies was then attempting to secure two million dollars or approximately that amount from the United States to pay its losses based on a claim the District had misled the Contractor and that the geological report specifically constituted constructive fraud and, at the same time we were taking that position, I told you that you were entitled to an extension of time?

(Testimony of J. Paul St. Sure.)

A. I don't know about all the arguments as to all these things being made at that time; I am giving you my best recollection of the conversation as I remember it.

Q. Mr. St. Sure, you will remember that, after the slide and cave-in that occurred on the 22nd of February, 1936, you came into the case as an attorney for Six Companies? A. Right.

Q. You knew, at that time following your employment, there had been claims made over a period of six or seven months before the date of your employment; you knew that, too? A. Yes.

Q. And you knew that those claims were based upon the alleged constructive fraud of the District in the preparation of its plans and specifications and its geological report?

A. I knew about claims for those amounts.

Q. Well, we had discussed it, had we not?

A. Yes, I think we had.?

Q. So, you knew, from some of the conversations that you had prior to the trip to Washington, it had been stated that Six Companies had a claim which they were attempting to satisfy and which was denied en toto by the District; that was all clearly understood before we went to Washington?

A. Yes.

Q. And still, after we got to Washington, you state, now, that I told you that you were entitled to an extension of time? A. Yes.

Mr. Tinning: That is all. [1658]

(Testimony of J. Paul St. Sure.)

Redirect Examination

Mr. Marrin: Q. Mr. St. Sure, this claim that the Six Companies had at the time you were employed and which was advanced in Washington was not for extra work, was it?

A. No; it was not. That is, it was for the delays and the result of the ground conditions and various changes and other matters which were all included within the total claim.

Q. Now, the Six Companies was not attempting to get the money directly from the Federal Government at that time, was it?

A. They were trying to find a means, by Government grant or otherwise, to provide further funds to meet the claim. Six Companies, as a contractor, could not make application for those funds, so we found.

Q. Who would have to make the application?

A. The District.

Q. And the District declined to do so?

A. Yes.

Recross Examination

Mr. Tinning: Q. You were in Washington in August, 1936, were you not? A. Yes.

Q. Again, in connection with the same matter?

A. Yes.

Q. At that time, there was no representative; when you arrived in Washington, there was no representative of the District there; and Mr. Wittschen, who was employed in this matter by the District as associate counsel in connection with this claim, was

(Testimony of J. Paul St. Sure.)

in Boston at the meeting of the American Bar Association, was he not? A. I believe so.

Q. And Mr. Wittschen came down; you wired Mr. Wittschen, didn't you, that you were there?

A. Yes.

Q. At that time, isn't it true that Mr. Wittschen stated that the only basis upon which the District would consider making any application to any Government body was that Six Companies would put a [1659] dismissal of this action in escrow to be delivered if the application was granted, or denied?

A. I recall that suggestion being made, or those conditions being made; but just when and where, I do not remember,—whether it was made in Washington or before or after.

Q. Wasn't it made both in Oakland and in Washington, Mr. St. Sure?

A. It may have been.

Q. You have no specific recollection as to the time; but you know that that condition was imposed as a basis for the District going in and as any consideration for any effort to secure the additional funds?

A. I recall Mr. Wittschen stated that that was his plan and any arrangement that might be made would have to be on that basis, and he would so recommend.

Q. And he was representing the District in Washington while the negotiations were going on?

A. I understood that.

Q. Do I understand, from your reply to Mr. Marrin, that you said that it was not a fact that Six

(Testimony of J. Paul St. Sure.)

Companies claim which was being advanced in May of 1936 was not based upon the fact that you had been misled?

A. I do not recall giving any reply or any question being asked of me.

Mr. Marrin: The question was directed simply to this: that it was not simply a claim for extra work as extra work is ordinarily meant; the claim was based on other conditions.

Mr. Tinning: Well, extra conditions due to doing more than you expected to do, and your original idea of it, whether it be extra timbers, extra excavations, extra concrete,—all of those things were added to your claim.

Mr. Marrin: But I did not want the implication left that it was due to something the District had ordered us to do which was outside the contract.

[1660]

Mr. Tinning: Mr. Marrin, I understand the basis of the claim against the District has always been that there was a vast additional amount of work that was actually performed in excess of that which was contemplated by the Contractor when he undertook this contract, and, roughly, that that vast extra amount of work was extra excavations, extra timbering and extra concrete.

Mr. Marrin: That is true; and, also, of course, that the conditions under which the work as described in the contract was done were very much more difficult.

(Testimony of J. Paul St. Sure.)

Mr. Tinning: Q. You so understood Mr. Marrin's question, Mr. St. Sure?

A. Well, frankly, I had in mind the more technical distinction or definition of extra work as distinguished from additional work. We made that distinct in our thinking. I had in mind, when he asked the question, that he referred to extra work as such.

Q. You understood, by his question, that it meant additional work in addition to that contemplated by the contractor when he understook the contract?

A. I would ask you to go back to the question and answer. Now that I have listened to your argument——

Q. Well, Mr. St. Sure, I think we are probably quibbling over something; we both probably mean the same thing. You thought extra work meant something that was ordered by the District as an extra under the contract, and you explained you meant additional work, that is, work in addition to that contemplated by the contract?

A. I meant the claim of Six Companies was based, as I understood it at that time, upon this additional work which they were required to do,—additional construction, additional equipment, additional man hours and additional work necessary by the ground conditions which had not been disclosed, and all the other matters which [1661] were asserted.

Mr. Tinning: No further questions.

Mr. Marrin: No further questions.

(Witness excused) [1662]

VICTOR G. HINDMARSH,

Recalled for Plaintiff.

Mr. Marrin: Q. You testified, Mr. Hindmarsh, on your direct examination at page 1096 of the transcript, in answer to the question "Q. What was the condition of the timbering as you observed it?" —the answer as it appears in the transcript is "The timber was in bad condition." That should be "The timber was not in bad condition," should it not?

A. That is right.

Q. Further on, on the same page, appears the statement, "Some of it showed weight from crushing in of the adit rather than anything else." That should be "crushing in at the adit"?

A. At the adit.

Q. The adit never crushed in? A. No.

Q. On page 1101 I asked a question with respect to an exhibit and the transcript now reads in this manner: "Whereas it shows on page 17, with reference to the cross in the square outside the word 'tape' "—the word "outside" should be "opposite"? A. Yes.

Q. On page 1106, in the question appearing about two-thirds of the way down, it now reads: "Take here between 170+55 and 122+05, there is a date 10/1 to 10/7, 1935." The station should be 117 instead of 170, should it not? A. Yes.

Mr. Wittschen: I think we could sit down and agree on such things, we have already had that understanding.

(Testimony of Victor G. Hindmarsh.)

Mr. Marrin: Very well, I will not correct any more of these minor matters.

Mr. Wittschen: I think we will save time by agreeing on the record.

Mr. Marrin: Q. Mr. Hindmarsh, there is one matter, however, which I would like to have you testify to. At page 1201 of the transcript appear the following questions and answers: [1663]

"Mr. Marrin: Even if 240 pounds of powder was used in the shot a short time before this cave-in would you consider that was heavy shooting?

A. No, I would not. It depends, of course, on the size of the shot, how much ground you are moving.

"The Court: And the material?

A. And the material. As a rule, this ground only took about three-quarters of a pound of powder—as the record shows, about three-quarters of a pound per yard, which is a very light shooting in any tunnel that has to be shot at all."

To what part of the tunnel shooting were you referring when you said that the average amount was three-quarters of a pound?

A. We were talking about the bench at that time; that is what I had in mind.

Q. By "the bench" you mean the core?

A. Yes.

(Testimony of Victor G. Hindmarsh.)

Q. Your statement of three-quarters of a pound was not intended to apply to the average amount of powder used in blasting the entire tunnel?

A. No; the drifts and rings took a little more powder than the bench did, always do.

Q. Could you state what was the average amount of powder used generally in the entire tunnel?

A. As I remember it, it was one and a quarter pounds to the neat yard.

Q. About one and a quarter pounds?

A. About a pound and a quarter.

Q. You previously testified as to a conversation that you had with Mr. Boggs on January 22, 1936, concerning the question of extension of time, at which time you presented to him a construction schedule and form of letter. Did you thereafter at any time discuss with Mr. Boggs the subject of extension of time of doing the work?

A. No, I did not.

Q. I show you Defendant's Exhibit SSS, which is the application for [1664] an extension of time dated May 8, 1936. Did Mr. Boggs ever discuss that application with you? A. No, he did not.

Q. Did he ever request you to furnish him data in support of it? A. No.

Q. Now, Mr. Hindmarsh, you testified that you set the timbers a minimum distance of 3 inches outside of the area in which the concrete lining was to be placed. Where you set the timbers three inches outside of that area in which the concrete was to

(Testimony of Victor G. Hindmarsh.)

be placed and contemplated leaving the timbers in, how far was it necessary to excavate the ground beyond the concrete line in order to so set the timbers? A. Approximately 21 inches.

Q. Will you explain what that 21 inches consists of?

A. There is three inches for clearance on the inside of the timbers, they are 12-inch timbers, three inches of lagging and then practically 3 inches for working space in order to put your lagging in, making a total of 21 inches.

Q. How much reinforcing steel, as specified in the original plans, was to be placed in the Type A section?

A. As I remember, it was one curtain, with 24-inch centers.

Q. During the time you were in charge of the work did the District order this amount increased in any part of the tunnel?

A. Yes, it did considerably.

Q. In about what proportion to the amount of work constructed under your supervision?

A. I would say at least 50 per cent.

Q. How was the increase made?

A. It was made both by less spacing on the inner curtain and also putting in a second curtain, two curtains instead of one.

Q. Would you describe what you mean by a curtain of steel?

(Testimony of Victor G. Hindmarsh.)

A. Well, the plans called for one row of steel in 24 inches over the arch and then the second curtain would be another row over the top [1665] of that one, probably 18 inches apart.

Q. Did this increase in the amount of steel in anyway cause additional difficulties?

A. It always does; it takes twice as much time to put the steel in as originally planned, and it increases your difficulty in putting in your concrete, you have got to work in between two layers of steel instead of on top of one. The biggest delay is in the transportation; one of the biggest troubles you have is in congestion of transportation, especially where you are excavating and lining the tunnel with concrete at the same time; any additional tonnage that it is necessary to take into the tunnel slows up the whole operation.

Mr. Marrin: No further questions.

Cross Examination

Mr. Tinning: Q. Mr. Hindmarsh, you, of course, are familiar with the provisions of the specifications that accompanied the contract with respect to concrete lining? A. Yes, I am.

Q. Do you remember this provision of the specifications, Section 32, about half way down in paragraph 6 in Concrete Lining, on page 61:

> "Reinforcing steel, as shown on the plans, is the minimum requirement and the District Engineer shall have the right and authority to

(Testimony of Victor G. Hindmarsh.)

increase the amount of reinforcing steel in accordance with his judgment as to necessity; the contractor shall furnish and place such additional reinforcing steel at no additional cost to the District, other than the price per pound bid for reinforcing steel in place. Reinforcing steel shall conform in all respects to requirements contained in Section 14, Reinforcing Steel, of these specifications."

A. Yes.

Q. In my preceding question Mr. Wittschen calls my attention to the fact that I misstated the paragraph to Mr. Hindmarsh, it is in paragraph 7, and it appears on page 61 as part of Section 32 [1666] of the Specifications. Now, it is true, is it not, that as this steel that you have referred to was ordered and that additional amount of steel was placed, the amount of steel that was placed was paid for by the District in accordance with the price fixed by the contract? A. That is right.

Q. So that while you had, as you say, transportation and placing difficulties, it was part of the job that the Six Companies undertook, was it not?

A. Yes, it was part of the job, of course, but the tonnage ran over a great amount, which would slow up operations more than anything else.

Q. That is true, but you were being paid for the cost of placing that steel under a price that was bid by Six Companies as a part of its contract?

(Testimony of Victor G. Hindmarsh.)

A. We were paid the unit price, yes.

Q. That was the price that was bid, was it not?

A. Yes.

Q. You never objected to putting in the steel, did you? A. Not that I recollect.

Q. Isn't it a fact, Mr. Hindmarsh, that this provision was put into the specifications for the purpose of giving some flexibility to the placing of the structures?

Mr. Marrin: I object to that question on the ground it is argumentative and improper cross-examination. This witness cannot testify as to the purpose in putting it in.

Mr. Tinning: He is a tunnel expert.

The Court: If he knows he may answer.

A. I do not know what they had in mind; I presume that is what they had in mind so that it could be flexible.

Mr. Tinning: Q. You were not ordered to put this steel in in all places in the tunnel that you constructed, were you?

A. No, I testified about 50 per cent.

Q. Where the District Engineer, in his opinion, and judgment, thought that additional steel was necessary he ordered you to put it in? [1667]

A. That is correct, yes.

Q. And you did it? A. Yes.

Q. And you never protested?

A. Not that I remember.

Q. Did you have a sub-contractor on the steel?

(Testimony of Victor G. Hindmarsh.)

A. Yes, that steel was sub-contracted, but we had to pay the sub-contractor more money.

Mr. Tinning: We ask that that go out.

The Court: It may go out.

Mr. Tinning: Q. The sub-contractor on the steel did not delay the work of the tunnel, did he?

A. Yes, a certain amount; whenever he had more steel to put in it was bound to delay.

Q. Did he fail to supply the steel when you ordered it?

A. No, it was not a question of the supply of steel, it was putting it in.

Q. It was work that was required in putting in the steel? A. Yes.

Mr. Tinning: No further questions.

Redirect Examination

Mr. Marrin: Q. Did the District pay for all of the steel that was placed?

A. No, I do not believe it did.

Mr. Tinning: Q. Did you ever protest that you were not paid for any steel that you put in?

A. No, I did not protest; I don't know whether the company did, or not.

Mr. Tinning: Mr. Marrin, I am somewhat surprised at some of the questions this morning because of matters that occurred in September, 1935. I assume what you are referring to now is the fact that in recovering the break-in, the cave-in which occurred on August 28, 1935, that the Six Com-

(Testimony of Victor G. Hindmarsh.)

panies agreed to do certain work without charge. Is that what you refer to?

Mr. Marrin: No, the District refused to pay for the lapped steel, and they did state, you put the steel in in the south tunnel opposite the cave-in, that you refused to pay for. I simply [1668] asked that question in answer to the question you asked, if they paid for all of the steel. As a matter of fact they did not.

Mr. Tinning: Q. Did you ever present any bill to the District for steel which was not paid?

A. I don't know as we presented any bill at all.

Q. Did you make any protest in writing to the District? A. No, I did not.

Q. Did the Six Companies at any time protest any estimate that was prepared by the District Engineer upon which progress payments were made in this case? A. Not that I know of.

Q. Counsel referred to tie rails and splices——

Mr. Marrin: No, that was lapped steel.

Mr. Tinning: Q. Are you familiar with the provisions of Section 14 of the specifications, Mr. Hindmarsh, appearing in paragraph 8, on page 22 of the specifications,

> "only reinforcing steel in place and covered with final concrete will be paid for, and the poundage will be calculated for straight line lengths, no splices included, except where splices are specifically detailed or called for on the plans"?

(Testimony of Victor G. Hindmarsh.)

A. Yes, I remember that.

Q. That is the way you obtained your pay for the steel that you put in?

A. Yes. The only steel that I know of that was not actually paid for was that space in the cave-in.

Mr. Tinning: That is all.

Mr. Marrin: No further questions.

CLARK RANKIN,

Recalled for Plaintiff.

Mr. Marrin: Q. Mr. Rankin, you testified on your direct examination that you were in charge of the tunnel operations from about June 1, 1935 up till the time the operations were shut down, ex- [1669] cavation operations were shut down on August 21, 1935. At the time that you were in charge of the operations of excavation, the excavation was being carried on by the drift method. Now, in performing the excavation in the two tunnels under the method used by you, in what place was it necessary to perform blasting operations?

A. It was necessary to perform the blasting operations in each of the four drifts and one ring drift, and the core.

Q. Was the blasting done on each of those places at the same time?

A. No, it was not, not necessarily.

(Testimony of Clark Rankin.)

Q. Will you explain why?

A. Well, each drift, including the ring drift, that would make five drifts, the core would make a sixth operation, is a separate and distinct operation. During that time these drifts, due to the great variance in formations we were going through—we were going through probably several different types of rock or ground; one drift might be proceeding ahead in a fairly hard rib probably of short duration, while another drift was in very soft material, and therefore it was necessary to carry on different drilling procedures to meet the ground encountered, and each time a shift had drilled the ground we shot the ground as soon as it was drilled.

Q. When you shot the ground in one drift what was done with the tunnel crew that was working.

A. It was necessary to remove all of the men in the vicinity of the heading and for some distance back at the time any shot was fired, whether it was a plug shot, that is, a single shot, or a round in a drift, or in several drifts, or the core; that included all the excavation crew, that is, the shovel crew, motor and transportation units, etc.

The Court: We will take a recess for five minutes.

(After recess):

Mr. Marrin: Mr. Reporter, would you read the last question [1670] and answer?

(The record was read by the reporter.)

(Testimony of Clark Rankin.)

Q. How long, on the average, would the crew be out while the shot was being fired?

A. I think the average would be somewhere about half an hour, twenty minutes or half an hour, varying on the distance that they had to go out and back to the heading.

Q. How frequently did this occur in a twenty-four-hour period?

A. It occurred quite frequently during the time when I was there, due to the fact that we had these many drifts and the core, and I would say that probably five or six times a day would be a good average.

Q. When the operations were carried on under the full-faced method at what place was the blasting done?

A. The blasting was done at the face, the point of the operation, and it would amount to practically the same amount of time that was required for one drift.

Q. About how often did the crew have to be removed when the operations were carried on under the full-faced method?

A. All depending on the length of the round, and the time that it would take to muck out. It depended on the cycle that you would set up.

Q. What is the usual cycle?

A. Well, if you were shooting a twelve-foot round you would probably be able, if you had the equipment lined up for it, to shoot twice in a 24-hour day.

(Testimony of Clark Rankin.)

Q. The crew would have to be removed only twice under that method, and five or six times while the operation was carried on by the drift method?

A. I would correct that by once or twice, it is all relative to the amount of the pull and the amount of muck.

Q. How much muck was there in the space you had charge of when you were operating under the full-faced operation?

A. Practice taught us it is not advisable to shoot any further, that is, to drill and remove muck any further into the heading than the dimensions of the [1671] drift, that is, the cross dimensions of your drift; say they were 6 by 6, you would pull in the vicinity of a 6-foot round.

Q. I think there may be some confusion because I asked you first with respect to the full-faced method, and you answered with respect to the drift method.

A. In the full-faced method it is the same as in the drift; the size of the tunnel has an absolute bearing on the length of the round that you can pull; that is necessary because of the choking action of the round, when the round is shot, if you try to pull too long a round the blast chokes itself and you do not get the efficiency of your powder.

A. As I understood you, when you are operating under the drift method the length of round you can pull in one shot is limited by the diameter of the drift? A. That is right.

(Testimony of Clark Rankin.)

Q. The sizes at the drift that you were driving were what?

A. They were a little over, they averaged a little over six feet in core section; that pulls a little over a six-foot round.

Q. And your length of six feet was limited by the diameter of the drift? A. That is right.

Q. So that in excavating under the drift method as compared to the full-faced method, considerably more delay was caused from shooting alone in the excavation under the drift method: is that correct?

A. Yes, I might clarify that point; whereas you could pull a six-foot round in a drift, if you were shooting the full face in the tunnel you could probably pull up to a 20-foot round.

Mr. Marrin: You may cross-examine.

Mr. Tinning: No questions.

STANFORD H. WILDE,

Called for the Plaintiff; Sworn.

Mr. Marrin: Q. Mr. Wilde, were you employed by the plaintiff, [1672] Six Companies of California? A. I was.

Q. About what date?

A. January 31, 1935.

Q. Did you remain with the company thereafter until it ceased work on the contract that is in litigation? A. I did.

(Testimony of Stanford H. Wilde.)

Q. Were you familiar with all of the records of the company? A. Yes.

Q. On this matter of the amount of powder used, there is a little confusion about it, and I want to clear that up by our records. Will you state what the records of the Six Companies of California show as to the amount of powder which was used in these tunnels, both with respect to the cross excavation and the neat?

Mr. Wittschen: Objected to as immaterial. I do not think in this case it is necessary to go into minute detail as to how many sticks were used and how many holes drilled. They were obviously building a tunnel, and not a lath house in the back yard, and they needed powder; how much they used is immaterial; they agreed to use all that was necessary.

Mr. Marrin: If your Honor please, I think the last witness, Mr. Hindmarsh, was slightly in error in his answer, and we simply want this record to be accurate.

Mr. Wittschen: You can call Mr. Hindmarsh and correct it.

Mr. Marrin: This witness knows the exact amount and we want to offer to the Court in good faith to show the exact amount as shown by our records.

The Court: He may answer the question. I will give you a record on it.

A. The amount of powder for the gross excavation was 1.24 pounds of powder per cubic yard of

(Testimony of Stanford H. Wilde.)

gross excavation and 1.57 pounds of powder per neat yard of excavation.

Q. By "neat yard of excavation" you mean what?

A. That is the amount inside of the neat concrete lining, in other words 35.61 [1673] cubic yards per lineal foot of tunnel.

Q. And by "gross excavation" you mean what?

A. That is the total amount of excavation we took out per lineal foot of tunnel.

Q. I show you here a document which is marked "Reinforcing steel," and if there is no objection before having the witness explain it I will offer it and give it an exhibit number, so as to refer to it in the testimony.

Mr. Wittschen: I am going to object to its offer as entirely immaterial, so that the Court may have the matter before it, so that it may rule. It is your estimate of the amount of steel that was required to be placed in the tunnel. We are not objecting to the document for the reason that it is a copy and not the original record, or anything of that kind; our objection is not technical, but in view of the fact that they agreed to put in all of the steel that was required and were paid for at the bid price, what difference would it make if they had used blank or blank pounds, whether it was 1 or 1000 pounds more or less; their contract was that they put in a certain minimum of steel, and so much more as the Engineer required as they went along. It is imma-

terial how much went in, they were paid for it.

Mr. Marrin: I think you misunderstood what this shows. It does not show anything about the pounds of steel; it shows the stations at which the steel was placed and the lineal feet between those stations, and it contains copies of the maps or diagrams which were delivered by the District Engineer to the plaintiff in this case, directing it to put that steel in at that particular place.

Mr. Wittschen: I misunderstood it to that extent, but the principle is the same.

The Court: In reference to this document is there anything in that document which has not already been gone over?

Mr. Marrin: There is nothing in the record about the amount [1674] of steel or how the steel was placed, or the design of steel that was ordered to be placed in the tunnel. The point is this, in the original plans the Type A section shows one curtain of steel placed in the tunnel. As a matter of fact the district ordered in a great deal more steel, and the testimony of Mr. Hindmarsh shows this increased the difficulties of work and slowed up the operations. On the question of unavoidable delay we think this evidence is pertinent as showing not that the District did not have the right to order it in,—we do not question that, but we did put in all the additional steel and it delayed the operations; it was a thing over which the contractor had no control. We simply want to show what the facts are with respect to the steel.

(Testimony of Stanford H. Wilde.)

The Court: What facts are you going to present to prove that?

Mr. Wittschen: Mr. Hindmarsh has already stated——

Mr. Marrin: We are going to present this document, which will show the steel that was placed, which will be in contrast to the amount of steel as shown on the original plans, which are in evidence.

Mr. Wittschen: Might I observe, putting in the record how much was placed does not show where it was placed, and Mr. Hindmarsh has already said he put in 50 per cent. more than the minimum required.

The Court: Whatever the facts may be, both sides are acquainted with the facts, and the amount of steel, and the stations; we are consuming time here. I have other work, other cases, and I am being pressed on them, and it is my purpose now to bring this thing to an end.

Mr. Marrin: I have tried to make clear to your Honor the purpose of our offer.

The Court: How long will it take to take care of this document?

Mr. Marrin: If there is no further objection it will take about thirty seconds to dispose of this witness, maybe a minute. [1675]

Mr. Wittschen: Might I observe reinforcing steel did not delay the excavation work; that is where they were delayed. This is entirely immaterial.

(Testimony of Stanford H. Wilde.)

The Court: Counsel may get some comfort out of it. That is not the difficulty I find myself in. I do not want to mislead him to his injury, however. When finally we come to meet these matters definitely there is much of the matter that we wont need here that we are wasting some time on. With that admonition you may proceed with the hope that we will come to the conclusion of this testimony.

Mr. Wittschen: I assume, your Honor will admit the exhibit?

The Court: Yes.

Mr. Wittschen: Note an exception.

(The document was marked "Plaintiff's Exhibit 99.")

Mr. Marrin: Q. Mr. Wilde, referring to Plaintiff's Exhibit 99, will you please explain briefly to the Court what that shows, just put it up there and explain it to his Honor.

A. This starts with the portal section of the north tunnel at station 111+42.55 and carries through consecutively with each station, showing the lineal feet and showing the type—referring to the District order appearing in the back—the type of steel which was placed in the arch, in the left footing and right footing.

Q. Now, will you refer to one of the diagrams?

A. In other words this A-3, which is the District sheet showing the steel which should be placed in this given section.

(Testimony of Stanford H. Wilde.)

Mr. Tinning: Q. When you say "District sheet," so that we will have the record clear, each time that there was any change in the way in which the steel was to be placed in this lining the District gave an order to the contractor and this sheet proved the detail of that order?

A. Yes; that is where these stations are broken down—each time we received a new order we broke them down this [1676] way.

Mr. Marrin: As far as you know, that is a correct record of the steel and the design of the steel that was placed in the tunnels? A. Yes.

Mr. Marrin: That is subject to your check. That is all.

Mr. Tinning: No questions.

BEN M. PAGE,

called for the Plaintiff; sworn.

Mr. Smith: Q. Where do you reside, Mr. Page?

A. 3800 West Adams Boulevard, Los Angeles.

Q. What is your present occupation?

A. Instructor in geology at the University of Southern California.

Q. Are you a graduate of any university on the subject of geology? A. I am.

Q. Where?

A. I graduated from Stanford University in 1933.

(Testimony of Ben M. Page.)

Q. What degree did you receive for that?

A. Bachelor's degree, Bachelor of Arts.

Q. Did you do further studying on the same subject?

A. I did. I returned and received a Master of Arts degree in 1934.

Q. What experience did you have during the time you were studying geology at Stanford University or thereafter up to the present time in handling geological work in the field, commercially or otherwise?

A. I did not do commercial geology, but I had field work during the four summers, during which time I did geology mapping, involving the recognition and the massing of geological features. I also visited various mines.

Q. Where were they located?

A. I was underground at Tonopah, at Virginia City, Mill City, Ione, Edgemont, and various other places I do not recall. [1677]

Q. Did you undertake to examine ground conditions for the purpose of observing the nature of the ground in those drifts?

A. I did in a casual manner. I did not make any detailed investigation.

Q. You are familiar with the practice of geologists in making a detailed examination?

A. Yes, I am.

Q. Were you employed by the Six Companies of California, the plaintiff in this case?

(Testimony of Ben M. Page.)

A. Yes, I was.

Q. When were you so employed?

A. I was employed on September 25, 1935.

Q. And what were your duties after your employment, how long did it last, and just describe them generally, will you please?

A. I was employed to make an exact observation of the geological conditions in the Broadway Tunnels and to prepare myself to describe them accurately. That work lasted until about September 24, 1936; and part of that time was spent in plotting and accumulating the material I had gathered.

Q. What was your practice with regard to taking observations? Did you make notes of what you took?

A. I did. I think I can describe that best by describing first my work during the first three months of my employment, when there was no excavation in the tunnel; the excavation had been shut down following the cave-in, and during that first three months it was my purpose to see as much as I could of the ground that had been opened up already; and in doing this I went from place to place, systematically along the tunnel wall, wherever there was an opening between the timbers or between the lagging, I carefully noted the location of that opening, both its horizontal location and its elevation between the tunnel floors. In many cases I noted also the dimensions of that exposure, and

(Testimony of Ben M. Page.)

the next step was to examine carefully the material that could be seen at this noted locality; the material was identified as to variety, [1678] its physical condition was noted, whether it was hard or soft, or strong or weak; this work occupied the first two months of my employment, till I had covered the tunnel walls as they had been opened up, and I started to carry out the same system with the tunnel arch, and did so wherever it had not been concreted or gunited in the meantime.

Q. You are referring in that answer you have just given to the time when you first went to work in the fall of 1935, and there was no excavating being done: is that correct?

A. Yes. That period lasted until late next November.

Q. In the north tunnel was it November or December?

A. I think it was November—no, in the north tunnel it was December; in the south tunnel it was November.

Q. Now, during the time that you were making this observation did you limit your examination to purely looking at the ground, or did you do further than looking?

A. During my employment, during my work in the tunnels I collected samples of the material that had been encountered. Another aspect of the work applies to the period during which excavation was going on, excavation was resumed.

(Testimony of Ben M. Page.)

Q. Just a minute, I will come to that in just a moment. Before excavation was resumed and when you were making the observations you have described you made in the tunnels which were already excavated, or in the portions which were already excavated, did you make a systematic practice of obtaining samples throughout the length, as far as you could?

A. Yes, I did. I did not obtain them at definite intervals, but wherever it seemed advisable.

Q. You tried to get a representative condition, is that it? A. Yes.

Q. Mr. Page, after resumption of excavation what was your practice?

A. After excavation was resumed I spent most of my time in the tunnels again, and I made daily rounds and visited all along the head- [1679] ing; in the heading I observed the ground as it was being drilled, after it had been blasted, during the barring down, during mucking and during timbering, and I tried to acquire first-hand knowledge of the character of the material.

Q. Was your employment during this period that you have mentioned, from December, 1935, until approximately one year later, a full-time employment? A. Yes, it was.

Q. You devoted all of your time to it? A. Yes.

Q. Did you upon the conclusion or during the period of time between the June 13 date of 1936, when the plaintiff in this case ceased work on these

(Testimony of Ben M. Page.)

tunnels and the close of your employment at that time, cause a model of the tunnel to be made which would reflect your observation? A. I did.

Mr. Smith: We have here, your Honor, a model.

[1680]

Mr. Smith: For the purpose of identifying this, I will ask that it be called "Plaintiff's Exhibit 100 For Identification."

Q. Pointing at Plaintiff's Exhibit 100 For Identification, Mr. Page,——

If there is no objection, I will offer it at this time.

Mr. Wittschen: You better proceed. I don't know how far that goes.

Mr. Smith: Q. —Plaintiff's Exhibit 100 For Identification is the model that you prepared as you mentioned a moment ago? A. Yes, that is.

Q. Will you state how you prepared that and what it purports to represent? In case you wish to go to the model, don't hesitate to leave your chair.

A. This model represents the materials surrounding the Broadway Tunnels, the materials immediately adjacent to the tunnel concrete; and it was prepared from the materials I gathered, myself, underground, with the exception of a very small portion near the west portals.

Q. Was it done under your direction?

A. Yes, it was.

Q. Did you do the work yourself?

A. I plotted the geology myself. It was colored by technicians.

(Testimony of Ben M. Page.)

Q. Do you understand the scheme of the coloring as described?

A. Yes. If you care to have me, I will explain that scheme.

Q. Well, I am pointing at the plaque standing on the easel behind the model, Exhibit 100 for Identification. Will you explain what the colors purport to show, naming the colors?

A. The colors merely represent the variety of materials, much the same way as the colors of a map represent political divisions. The ground was not actually this color. I will read the legend—at least, a portion of it: "Brown on this legend indicates a formation of stream deposit, hill wash and creep. Red on this legend [1681] indicates diabase and altered diabase."

Mr. Tinning: Q. I think you better spell each geological term because the reporter cannot interfere or interrupt by looking up.

A. I will do that. "Green represents the orindan formation. Violet represents a formation of cherts and shale."

Q. Will you point out what you mean by "violet"?

A. Yes; this is violet. It appears here. Blue is such as this portion.

Mr. Smith: The witness is pointing with a pointer to portions of the model marked in that color.

(Testimony of Ben M. Page.)

The Witness: In other words, sandstone and grey which appears in the west portals of the tunnels indicates a formation of sandstone, shale and shaley sandstone.

Mr. Smith: Now, we will offer the model as Plaintiff's Exhibit 100 in evidence.

Mr. Tinning: Well, Mr. Smith, we don't want to be technical about it. However, I understand this gentleman said he personally inspected the tunnels when he was first employed in September, 1935.

Mr. Smith: Yes.

Mr. Tinning: At that time, the west end of the tunnel had been concreted.

Mr. Smith: Yes.

Mr. Tinning: And his model indicates——

Mr. Smith: His testimony will so disclose in just a moment.

Mr. Tinning: Well, it is a fact that portions of the model, at least, are taken from other information; it is not what he was able to observe.

Mr. Smith: That is correct. There is no suggestion he claims it is an accurate reflection of anything behind the concrete which was already installed when he was there. [1682]

Mr. Tinning: Will you have him show what the situation was?

Mr. Smith: Q. Will you point out, and define each station number, Mr. Page, the extent of the west end of the tunnels that was already concreted when you arrived there?

(Testimony of Ben M. Page.)

A. May I refer to some notes? In the north tunnel, the following portions were concreted prior to my arrival: from Station 111 plus 42,—that was the portal,—and to 113 plus 31; in the south tunnel, the following portions were concreted: from the portal at 111 plus 53 to 114 plus 90; and further in a few feet were concreted: from 119 plus 24 to 119 plus 43.

Q. That was in the south tunnel?

A. Yes. The total in the north tunnel was 188 feet of concrete; and the south tunnel, 356 feet.

Q. As to the concrete portion, you don't purport to represent the geological conditions of the ground behind the concrete?

A. Of course, I could see no geological exposure in those portions. I have simply indicated those portions on the model for completeness; and all my data was derived from the company records and from certain rock samples which had been taken prior to my employment.

Mr. Smith: We now renew the offer of the model in evidence.

The Court: It may be admitted and marked plaintiff's exhibit next in order.

(Thereupon, the model was marked "Plaintiff's Exhibit No. 100.")

Mr. Smith: Q. Now, Mr. Page, addressing your remarks first to the question of the status of the work when you arrived there. will you just point out on the model and describe the station numbers

(Testimony of Ben M. Page.)

of the excavation already made when you started, just briefly, so we will know just where you started?

A. A portion of the tunnel was fully excavated as follows: in the north tunnel from 111 plus 42 to 122 plus 11; the south tunnel, from 111 plus 53 to 124 plus 57. [1683]

Q. Were there any drifts ahead of that south excavation that you just mentioned?

A. Yes, the drifts went on beyond the fully excavated portion in the north tunnel. The eastbound drift on the north side went 128 feet, from 122 plus 11 to 123 plus 39. The eastbound drift on the south side of that same north tunnel, from 122 plus 11 to 123 plus 40; and from the other portal of that north tunnel drifts had been driven westward, on the north side of the tunnel from 140 plus 18——

Mr. Smith: The witness is now pointing to the east portal end of the model.

A. —132 plus 23; and on the south side of the north tunnel, the westbound drift had been driven from 140 plus 18 to 131 plus 92. The following are the drifts in the south tunnel as they existed upon my arrival: North side of south tunnel, eastbound drift extended 91 feet, from 124 plus 57 to 125 plus 48. The south side of the south tunnel, the eastbound drift went 130 feet, from 124 plus 57 to 125 plus 87. The westbound drift in that same south tunnel——

Q. The westbound drift: you mean by that the drift driven from the east portal south?

(Testimony of Ben M. Page.)

A. Yes.

Q. Eastbound drift: you mean drifts driven from the west portal?

A. Yes. The westbound drift in the south tunnel extended on the north side from 140 plus 97 to 131 plus 30; on the south side of the south tunnel, from 140 plus 97 to 131 plus 31.

Q. All the figures that you have mentioned or used in the answer as to location of drifts or of the full excavation, refer to the station numbers on the engineering station lines of the tunnels?

A. Yes, they do.

Q. You made yourself familiar with those station numbers and knew what they were?

A. I did. [1684]

Q. In connection with this particular model, have you got a line or legend on it which reflects the station numbers that you have been mentioning in general?

A. Yes. The model includes station numbers at intervals of 100 feet, alongside each tunnel.

Q. What were you pointing out then?

A. I was pointing to one of the station numbers.

Q. Well, you are in general pointing out a white strip which is alongside the line of the north tunnel?

A. Yes. There is a similar one alongside the south tunnel.

Q. What is the character of the information contained on these white strips which are tacked down on the floor of this model?

(Testimony of Ben M. Page.)

A. In addition to the station number, there is a white strip alongside each tunnel which makes comments on the physical condition of the rock or ground, and, furthermore, across that, the quantity of data that was available for me during my studies.

Q. And in making that comment, does the comment itself have a defined area as to the part of the tunnel that is covered by the comment,—the tunnel ground?

A. Yes. This description alongside of each tunnel indicates the extent of each comment as it applies to each tunnel line.

Mr. Tinning: In other words, is this your vertical line?

The Witness: Yes.

Mr. Smith: Q. The vertical line, in other words, projected up, covers that? A. Yes.

Q. For the benefit of his Honor, you might point out what you were just saying.

A. These are the station numbers. This strip indicates, in blue letters, certain physical conditions of the ground, and likewise, in black letters. The green letters indicate the source of my data, so the data can be evaluated. For instance, in the west portal, here, is a comment that this portion was [1685] concreted prior to my arrival.

Q. Show his Honor the place where the August cave-in is shown there.

A. The August cave-in is indicated on this white card alongside the north tunnel. The vertical red

(Testimony of Ben M. Page.)

line indicates the extent. There is a similar card for the other cave-in, namely, the cave-in of February 22, 1936, and the cave-in of February 11, 1936.

Q. Pointing to the cave-in which occurred in the east end of the north tunnel? A. Yes.

Q. The last remark you made? A. Yes.

Q. Will you state, for the benefit of the Court, what this geological model shows as to the condition of the ground in the north tunnel, beginning at the west portal? A. Yes, I will do that.

Q. And, in making your comments, you might call attention to any remarks that are contained in the white strip there as illuminative of what you are saying.

The Court: He wants to get a record of that; so you describe it.

The Witness: A. I will do that. Beginning with the west portal of the north tunnel, from that point to about 113 plus 70 the north tunnel lay within the sandstone, shale and shaly sandstone, which is indicated in grey on the model.

Mr. Smith: Just one moment. May I interrupt you? Counsel for the District asked me:

Q. What is the scale of this model?

A. This is 15 feet to the inch.

Mr. Tinning: Q. Is the height the same both horizontally and vertically,—the scale the same?

A. Yes. [1686]

Mr. Smith: Q. You may proceed.

(Testimony of Ben M. Page.)

A. The sandstone, by the way, consisted of consolidated, or partly consolidated, sand. The shale consisted of more or less consolidated silt and clay, and the shaly sandstone is an intermediate rock.

Q. What do you mean by intermediate rock?

A. It is midway between the two compositions I just gave. It contains some silt and clay and some sand.

Q. Midway in characteristics, you mean?

A. Well, at least in constitution.

Mr. Tinning: There seems to be a difference of opinion between counsel and the witness.

The Court: I trust the witness won't be interfered with. You go right ahead and give us your answers, right down the line.

A. This first formation I have referred to was a mass which, according to the Company reports, was weak and locally soft and damp, and it required support throughout. I only saw, myself, a portion of it. Beginning at 113 plus 31, my own observation showed that the material I saw was weak, and it was badly fractured and it required timber support. From about 113 plus 70 to about 114 plus 15, the north tunnel penetrated a formation of cherts and shale which I had better describe. The cherts is a rock consisting mostly of silica. It is a hard rock, a brittle rock, with some of the characteristics of glass. In other words, it is rock that will shatter under stress, and the strength depends not at all

(Testimony of Ben M. Page.)

upon its hardness but upon the degree to which it has been fractured, or upon the degree to which it has been recemented. In this instance, and, in fact, throughout the tunnel area, the cherts occurred in thin layers perhaps an inch or an inch and a half in thickness on the average. Between these layers were layers of shale which was [1687] thinner in general. The whole of this cherts and shale from 113 plus 20 to 114 plus 15, approximately, was such that the rock was very badly crushed in places, or was pulverized; so it had a tendency to slump or run into the tunnel, and it was practically devoid of strength. It was within this cherts and the adjacent sandstone just to the east of it that the August cave-in occurred in 1935. I was not present during that cave-in but the debris was still in the tunnel upon my arrival, and that debris had been penetrated by drifts which afforded exposure of the material along the tunnel walls. The tunnel walls had not caved in, so I was able to get a picture of the geological conditions at the site of that cave-in. From about 114 plus 00 to approximately 114 plus 45, the north tunnel lies in sandstone which on the whole was harder than the sandstone that had been penetrated prior to this point, but it was crushed locally and was fractured throughout, and a portion of it caved in with the cherts during that August cave-in. This sandstone I refer to required timber support throughout.

Following this, going east, there is another belt of

(Testimony of Ben M. Page.)

cherts and shale from about 114 plus 45 to about 114 plus 60 or 70. That cherts and shale was again badly fractured and weak, but it was not as weak as the material that had caved in. It, too, required timber support.

From about 114 plus 70 or 80 to about 117 plus 50, the north tunnel lies within a sandstone formation. This sandstone was hard and the sand grains—that is, in places,—the sand grains being cemented to each other by natural cement, but in many spots the apparent strength of this material was invalidated by fractures that occu ied throughout. About 80 feet of this sandstone was the best material penetrated by the western part of the tunnel. Superficially, that 80 feet looked li.e substantial material, but close [1688] inspection revealed that it contained in places a network of fine grey lines, like pencil lines, which represented incipient fractures. A microscopic study of that material showed that the sandgrains had in many cases been crushed. Fortunately, some had been recemented by natural processes. With the exception of the 80 feet I mentioned, the remainder of this sandstone was not particularly strong, even superficially, and the whole mass, including the 80 feet, required timber support for safety.

After about 115 plus 90, an oblique crushed zone crossed the tunnel and rendered that portion of the arch very weak, so it was supported with square sets as well as with the usual timber.

(Testimony of Ben M. Page.)

At about 116 plus 90, diabase,—which I have indicated in red—diabases enter the north tunnel at the south side, and run obliquely across to the center line; and this diabase should now be described.

A diabase occurs in other parts of the tunnel. Its character varies widely, depending on the location. In some cases, the material was very hard; in other cases, it was almost devoid of strength. I think it is necessary, in this instance, to mention the origin of diabase. A diabase is an igneous rock, with a characteristic texture. That is a loose definition. By "igneous rock" is meant generally what is formed from a molten material,—a melted material,—which has cooled and consolidated. These diabase bodies came up from below, from the depth of the outer earth and filled cracks in the very rocky material and consolidated there. Bodies of this sort are termed "dikes," so I will refer to them as "diabase dikes." [1689]

Mr. Smith: Q. This is one shown in red?

A. Yes. This first diabase dike was partly black and firm, but many of the other diabase dikes throughout the tunnel varied widely from this, from that which had been altered; and, by alteration, I mean that the material has been changed by chemical processes so that in many cases the original hard constituents have been rendered soft and weak. In fact, some of the dikes were almost completely altered so that their original nature was obscured.

The diabase which entered the tunnel near 116 plus 90——

(Testimony of Ben M. Page.)

Q. Referring to the north tunnel?

A. —extended to the center line of the tunnel. Throughout part of this area it was firm. Throughout other parts it was very soft. In every portion, it had been crushed and fractured and the soft qualities near the center line were accentuated by the presence of much water at that point and by the presence of an adjacent body of rock, which I will describe in a few moments; so that that portion of the north tunnel was weak.

At about 117 plus 60, and from then onward for a few feet, that portion was partly gunited as well as supported by timbers.

From about 117 plus 50 to about 129 plus 90 in the north tunnel, much of the material was cherts and shale, although, as you can see from an inspection of the model, it was not a continuous cut of cherts and shale; possibly some rock. The same statements I have made regarding cherts and shale in this first belt that was encountered applied to the rest of the material except that the amount of crushing varied from place to place. In general, it was not crushed quite as badly as it had been at the site of the August cave-in. Here again the cherts and shale occurred in alternating layers, and in general throughout this area those layers trended almost at right angles to the tunnel line and they dipped or sloped [1690] rather steeply toward the west portal. This situation was an advantage to the Engineer.

Q. When you say they sloped toward the west

(Testimony of Ben M. Page.)

portal, in what direction did they slope; was the bottom of the slope toward the portal?

A. Yes.

Q. And the top away from it?

A. Yes. The general structure that I have indicated is only a generality. In most places, it bent. However, some bent so they were no longer planes; and in some places that bending was inclined quite acutely. The bending of the cherts strata involved a certain amount of fracturing, since that cherts is a very brittle material, and the fracturing was present wherever those layers were bent. It was also present in other situations.

I will continue now with some of the details of the north tunnel: The first part of this cherts and shale that was encountered was rather badly crushed and weak, as you can see. The first portion contained diabase dikes, indicated in red; and these dikes in most instances were very soft. They were almost completely altered. In place, they were plastic,—actually plastic, like modelling clay,—so the material could be grabbed out with the fingers and squeezed between the fingers. It was affected by water. Its plastic nature was most apparent when it was moist.

All the dikes except those I will mention otherwise were very largely altered and were soft. They were not all plastic, but they were all weak. The cherts and shale, with the diabase that was inspected from Station 118 plus 00 to 119 plus 00, was quite

(Testimony of Ben M. Page.)

heavy ground; by that, I mean ground exerted pressure on the proximity of the tunnel.

From 119 plus 00 to about 122 plus 35, the cherts and shale were here, again, badly fractured in places, —very weak. Here, [1691] again, there was some very soft diabase dikes; and at least two or three of those dikes were well exposed on the face of the core during the long suspension of excavations following that first cave-in; so many visitors to the tunnel saw those diabase dikes.

The Court: We will now take a recess until two o'clock.

(Thereupon, an adjournment was taken until two o'clock p. m., this date.) [1692]

Afternoon Session

BEN M. PAGE,

recalled.

Direct Examination (Continued)

Mr. Smith: Q. Mr. Page, will you resume, substantially, where you stopped at the adjournment for noon, and continue with your description of the north tunnel?

A. Yes, I will. I was describing the territory between Stations 119 plus 00 and 122 plus 35 in the north tunnel. I had called attention to a soft, altered diabase dike that occurred intermittently in that area. The cherts and shales themselves were locally

(Testimony of Ben M. Page.)

in a shattered condition and in themselves, in places, they were unstable also. The cherts and shales were not only penetrated by the diabase bodies but also by certain bodies of sandstones which had the physical character of the sandstone that I described between 115 and 117, approximately; so that has been indicated in this case by the same color that was used for that other sandstone shown in blue on the model.

One portion of the sandstone in the area under discussion near 120 plus 00 was better ground than the adjoining material. However, in some cases the sandstone bodies were not so favorable. I will say more about those in a few minutes.

From 122 plus 35 to about 123 plus 82, the cherts and shale were again locally crushed and they were again penetrated by bodies of altered diabase which assumed an amazing variety of forms and positions in the tunnel. These diabase dikes did not run in general parallel to the layers of cherts and shale. On the other hand, in most cases they cut across these layers at various angles and the haphazard arrangement of these bodies, in itself, was a hazardous feature. For instance, where these bodies more or less followed the tunnel line, they rather effectively removed the bond between the several portions of the arch, or between the walls and the arch. [1693] Between the wall and the arch—a case in point occurred between 123 plus 00 and 123 plus 80 or 90, where one of these bodies followed the tunnel wall

(Testimony of Ben M. Page.)

in an extremely irregular position. The diabase in that particular instance was not as plastic as some of the other diabase; it was not as soft; but it was weak, and that, coupled with its position in the tunnel, made that area very unstable. During my employment, excavations had to be stopped while the movement of the timbers into the zone was checked with gunite and with concrete.

From about 124 plus 00 to 126 plus 00 there was only one diabase dike. It was a soft one. At about 124 plus 25 or 30 was where it was located, and it ran almost parallel to the tunnel line. Except for this, the cherts and shale were comparatively good in that area. The layers were not particularly distorted; in fact, they were almost planes; and the crushing was not so pronounced. Although there were many fractures, altogether that section was the best cherts and shale that was penetrated in the entire north tunnel.

Mr. Tinning: Q. Mr. Page, do I understand that you are referring now to the section between 123 plus 00 and 123 plus 80?

A. No. I have gone on to another area; this is between 124 plus 00 and 126 plus 00. I have called attention to the fact that in those cherts and shale were locally affected by the presence of a soft diabase dike. Throughout this better portion of cherts and shale, the ground did require timbering for safety. It was not extremely heavy ground; but I

think it did require timbering from a safety standpoint.

At about 126 plus 00, a faulted condition was encountered in the cherts and shale, which persisted intermittently to about 128 plus 00. [1694]

At this point, I had better explain a fault, briefly:

A fault can be roughly defined as a fracture along which displacement has occurred; and the displacement, by the way, usually involves some granulation of the rock on either side of the fault. Sometimes rocks are merely badly crushed, and sometimes they are drastically crushed,—reduced to a pulverized mass. In some cases, the fault produces somewhat of a mechanical rock flour, which is plastic when wet. It is called a fault gouge,—a claylike material.

In the tunnel area, there were two main classes of faults: one of them ran parallel to the beds of cherts and shale; and, in this variety of fault, there was no granulation of material to speak of. This fault gouge was developed in thin layers, perhaps only half an inch or an inch or two inches. On the other hand, some of the faults ran across the cherts and shale, and, in this situation, they had a more disastrous effect. We have more granulation of the cherts and shale. The faults on this model are indicated by heavy black lines, as explained on the legend. Near one of these faults, at about 126 plus 00, a run occurred during which this shattered cherts poured into the tunnel. I was not present at the time that it happened; it happened at night; but that was during my employment.

At about 126 plus 70, a portion of this faulted area was partly occupied by a diabase dike of particular importance, and the diabase was largely altered material. On the other hand, it was not a plastic material; it was largely brittle; it was not as soft as many of the other dikes that had been penetrated in the previous part of the tunnel, but in spite of its apparent local brittleness, this material forced the timber in and gave rise to the cave-in on February 22, 1936, and that diabase and the adjoining or adjacent cherts and shale fell into the tunnel and filled it up.

By the way, I was present during part of this cave-in, and it [1695] was witnessed by me, although I missed the first stages; I came to the scene of the cave-in about two hours after it had started, and it was still in progress. At that time, there was a huge pile of debris on the south side of the north tunnel; this debris being largely the altered diabase. It was very light-colored,—almost white, in comparison with the cherts and shale; and a large part of the debris consisted also of a pulverized cherts and shale.

I did not detect any water in that material. Apparently, it had the usual moisture that is encountered underground. Shortly after my arrival—the cave-in continued from time to time, perhaps at intervals of 15 or 30 minutes; tons of material would crash down, temporarily stopping the work of building a bulkhead; and finally, after more arch timbers had crashed and after the debris had filled the tun-

(Testimony of Ben M. Page.)

nel up beyond the normal walk, or the normal roof of the tunnel, the tunnel filled up, and from that time on the caving was more spasmodic, although it continued off and on for many hours,—for more than a whole day.

Beyond that point, the cherts and shale were in better condition. From about 128 plus 00 to about 129 plus 00, it was better, although there were a few faults. From about 129 plus 00 to about 130, the ground was again cut by a soft diabase dike, which, in this instance, was largely very soft, although it was smaller than the previous one. This dike had a most irregular shape. It has been carefully plotted on the model. In addition to it, sandstone bodies occurred in the shale and cherts; and these sandstone bodies were also irregular,—assumed various shapes and various positions.

At this time, I want to explain the nature of those sandstone bodies which occurred off and on throughout the western part of the tunnel. I will refer to it as "sandstone dikes," although the term "dike" is usually confined to an igneous rock; but occasionally [1696] sedimentary rock assumes the same relation as an igneous dike, and they are then called sedimentary dikes.

These sandstone dikes, like the diabase, in many cases cut across the surrounding strata. They were not necessarily parallel to the cherts and shale; some of them went almost parallel to the tunnel and at right angles to the cherts and shale. In this area,

(Testimony of Ben M. Page.)

as I mentioned, from 129 to 130 in the north tunnel, some of those sandstone dikes followed the arch and had the effect of dividing the arch in half. The dikes themselves were not always an obstacle. In many cases, they had no perceptible effect upon the tunneling. In some cases, they are hard and brittle. In other cases, they were well fractured; but, more important, they lacked a good bond with the surrounding material,—a good contact between the surrounding material and the sandstones, which were often focal points of weakness, and often they were focal points of dampness, since, in so many cases, water drips occurred along them.

The orindan formation was encountered in the north tunnel at about 129 plus 00. The contact there between the cherts and shale and the orindan formation, however, had been offset by a fault about 14 or 15 feet. That fault added to the instability of the ground. A portion of that ground was gunited by the Highway Department after the Six Companies withdrew from the job. Further on in the orindan formation was an area of locally heavy ground where the ground gave pressure upon the timbers; that occurred between about 133 plus 50 and 134 plus 30. In this locality, there were many steep fractures that occurred in the rocks which ran about parallel to the tunnel, or made an acute angle with the tunnel.

Further on, at 134 plus 60 to about 134 plus 90, there is more diabase in the north tunnel. In this case, however, the diabase was not thoroughly al-

(Testimony of Ben M. Page.)

tered. It was a hard rock and a brittle [1697] material, and I suppose its only detrimental effect was its position just about parallel to the tunnel wall.

In addition to those points that I have referred to, the orindan formation, there was another locality in that formation that was wet at least part of the time and soft and weak while in that condition. I will mention some of those localities: from about 131 plus 30 to 131 plus 55; from 133 plus 10 to 133 plus 25; from 135 plus 50 to 136 plus 15; from 137 plus 00 to about 137 plus 15; from 137 plus 85 to 137 plus 95; and from about 138 plus 55 to about 139 plus 40.

Mr. Smith: Q. Those stations you have just mentioned are the locations of the wet places you spoke of?

A. Yes; those are the spots which were wet at least a part of the time, and were soft and weak while in that condition. At this latter spot I mentioned, near 139 plus 40, a portion of the orindan formation softened during heavy rains of February in 1936, and caved in to the timbered drift, filling up a small portion of the drift,—about 12 or 13 feet.

Aside from those designated portions of the orindan formation, the formation on the whole was not particularly bad ground; that is, relative to some of the other materials that had been penetrated. However, throughout, it did require timber support, and the wet places and unstable places that I enu-

(Testimony of Ben M. Page.)

merated were extended during those heavy rains so that large portions of the drifts in that formation showed signs of timber strain during the storms of the winter of 1936. Shall I proceed to the south tunnel?

Mr. Smith: Q. Have you concluded your observations on the north tunnel? A. Yes.

Mr. Tinning: May I ask Mr. Page one question?

Mr. Smith: Certainly. [1698]

Mr. Tinning: Q. Mr. Page, with respect to the winter of 1936, you mean the winter of 1935 and '36?

A. Yes; the storms I refer to, I think, started at the end of January and continued into February, 1936.

Mr. Smith: Q. Have you concluded your running description— Is that all you wanted to ask, Mr. Tinning?

Mr. Tinning: Yes.

Mr. Smith: Q. Will you proceed to give us the same review or resume of your model for the south tunnel?

A. Yes, I will. This will be briefer, because we have already discussed many of the materials that were encountered in both tunnels.

One of the materials that was met with on the south tunnel—

Q. You are starting at the west portal of the south tunnel?

(Testimony of Ben M. Page.)

A. Yes. One of the materials which occurred in the south tunnel was deposited stream material and hill wash and creep which I did not see personally but its presence I gathered from the progress report. That material occurred in the roof of the south tunnel from about 111 plus 52 to 112 plus 90. I know nothing at first hand about that material, although it was referred to in the progress report as "mud." The reason for its presence is the occurrence of a stream channel overlying the south tunnel. This stream channel slopes down toward the west portal and intersects a portion of the south tunnel roof. The bedrock underlying these stream deposits and extending beyond there, from 111 plus 53 to 114 plus 15, approximately, was the series of sandstones and shale and shaly sandstones which had been penetrated in the north tunnel at a similar position. Again, I did not see this material at first hand. By the absence of any details on my model, it is not meant to imply that no details existed there. [1699]

From 114 plus 15, approximately, to 114 plus 25 or 30, the south tunnel penetrated the first belt of cherts and shale. Although I did not see it myself, the progress report states that that material was pulverized; that spiling had to be driven, and breastboarding had to be maintained throughout that belt.

The next formation I did see, I studied carefully, was sandstone, indicated in blue. That occurred

(Testimony of Ben M. Page.)

from about 114 plus 25 to about 117 plus 50. This sandstone was similar to the sandstone that was indicated in blue on the north tunnel; but, on the whole, it was more highly fractured than the similar area in the north tunnel. On the whole, it was not even superficially as good ground as the corresponding ground in the north tunnel where they had these 80 feet of good sandstone.

One element that led to the weakness of this material was the presence of numerous soft seams of claylike material which occurred here and there in the arch. These seams are not everywhere on my model, because some of them I only saw in one spot and did not know where they went from there. Another element that led to the instability in this area was a very large, or comparatively large, diabase dike that ran down the center line more or less and left the tunnel at the north side. Fortunately, that dike was not thoroughly altered. It was not soft material; it was firm and brittle; but, on the other hand, in many places it did not have a good bond with the surrounding rock. It had the effect in some spots of cutting the arch into two parts. Also, it was more or less fractured. [1700] All of these materials in this area required timber support. The diabase required about the same support that the sandstone did. From about 117+50 to approximately 130+70 a large portion of the ground was cherts and shale, although here, again, the cherts and shale were not in a continuous body. I

(Testimony of Ben M. Page.)

will subdivide it and deal with each portion. From about 117+50 to 119+00 this cherts and shale was locally very badly crushed and in places it was wet; it was unstable ground, quite weak, required timbering, and it was gunited as well as timbered. It was largely supported with square sets and with gunite as well as the usual timber. From 119+00 to 120+00, a small part of that had been concreted before I came, but the remainder was timbered so the exposures were very few. In those exposures I did see the material was very badly crushed, it looked like a weak material. From 120+00 to about 120+75 sandstone was encountered, this sandstone being better than the other nearby rock, although it required timber support, this whole belt of cherts and shale, about 20 or 30 feet in thickness, then more sandstone from about 121+00 to about 121+50. In this sandstone and in many of the other sandstone bodies there is a peculiar phenomena, although the sandstone was solid, that is, it was at least firm, it contained fragments of cherts and shale that were isolated in it, as though these fragments had been held back in the emplacement of the sandstone. From about 121+15 to 122+15 a diagonal fault crossed the south tunnel. This fault was bordered and followed by a soft diabase dike, making that portion of the tunnel rather weak. From 122+15 to about 123+20 the cherts and shales were in slightly better condition. Locally there was heavy ground there. All of this required

(Testimony of Ben M. Page.)

timber support. From about 123+20 to 123+90 a very serious weakness occurred in [1701] the tunnel, due largely to a diabase dike that again was soft and rather plastic, and that area was so weak that it was not only timbered but was gunited as well. From about 124+00 to 125+90 the cherts and shale were in slightly better condition, but here again diabase bodies occurred at various angles and various positions, and in various degrees of consolidation. Parts of these bodies which were very soft were well exposed in the face of the core in the south tunnel during the long suspension of excavation that followed that first cave-in. These bodies were seen by many visitors to the tunnel. It might be well at this point, since I think that is really the first showing of diabase, to state that it is a difficult rock to recognize, because the alteration is not very commonplace, at least not that variety of alteration, and when I first saw the material I thought it was fault gouge, since you could stick your fingers in it; it was just like a stiff mud which could be molded in the hand.

Q. When you say "altered," what do you mean with reference to the character of alteration over a period of time?

A. I see your point. The alteration of the diabase has occurred during unknown years, perhaps 100, or 1000, or a million years, by chemical processes that had gone on in the outer part of the earth. This is a very slow process.

(Testimony of Ben M. Page.)

From about 125+00 to 125+80 or 90, one of these diabase bodies follows the south wall of the south tunnel. In most parts it was not a plastic material, it was a weak material, considerably sheared and fractured, and its position alone in that tunnel weakened the whole structure. The effects of these bodies of diabase are not confined to the diabase, itself, the effect extends into the surrounding rock. The effects of the fracture are greatly out of proportion to the size of the dikes, themselves, so a small dike, if it has an unfavorable [1700] position or if it has an unfavorable consistency, can weaken an entire area of the cherts and shales; the irregularity of these bodies was one element of their hazardous nature. It could never be prophesied when they would be encountered during the driving and sometimes one tunnel would go through diabase and the other tunnel would not; these bodies could not be prophesied from one tunnel to the next; sometimes the left wall of the tunnel would go through diabase and the right wall would not, or sometimes the left wall of the drift would go through diabase and the right wall of the same drift only six or eight feet away would be in another material.

From about 126+00 to 126+40 the cherts and shales were crushed and rather weak, although they are not pulverized; the bed, superficially, did not look much disturbed, but a close inspection showed that the cherts were fractured to a considerable degree.

(Testimony of Ben M. Page.)

From a point about 126+40 to about 128+60 the cherts and shales were not as highly fractured as hitherto in the south tunnel, and the beds were not as highly deformed, and that on the whole was the type of area of cherts and shales that was penetrated in the south tunnel. That area required timber support for safety, although it is impossible to prove whether or not they would have stood without the timbers; they certainly without doubt did require timber for safety, even in the best portion.

It is my intention to give a fair picture of this cherts and shale, and I do not intend to over-emphasize the weakness that occurs in them, but there is a fracture, at nearly every point, it is a degree of fracture that occurs along the layers of cherts; in many places these are divided into a series of small prisms by fractures that go at right angles to the layers, and these prisms may be half an inch across the juncture or an inch across, or there may be five or ten of them to the square inch. The strength of the rock depends largely upon that degree of fracture; also it depends upon the condition of the intervening layers of shale that usually alternate with the cherts. The shale, on the whole, is not as badly fractured as the cherts layers, but where it is the whole mass lacks sufficient strength.

[1703]

At about 128+80 there is soft altered diabase crossing the south tunnel in extremely irregular condition; that diabase weakens the arch. It was a soft mass in most places, although in spots it was brittle.

(Testimony of Ben M. Page.)

The irregularity of that body suggests this fact, since that body varies in width from a few inches to several feet, it suggests that many of these bodies may expand and bulge out just above the tunnel or just to one side of the tunnel, and by that means affect the whole structure of the tunnel, although this body, itself, appeared small within the excavation, itself; and that, coupled with the irregular distribution of the dikes suggests another fact, in many places where there was pressure on the timber in the cherts and shales for all we can tell there might have been diabase bodies outside of the excavation that were never penetrated, but which lent their effect to the rock that was penetrated. Some of the masses were so soft and so plastic that they had this additional effect, they could be regarded as surfaces of lubrication upon which the surrounding rock could skid or slip. By the way, that last portion there where the diabase dike occurred at 128+90, was gunited as well as timbered.

From about 129+00 to about 130+70 the cherts and shale were cut by several sandstone dikes which in this case were distinctly unfavorable, at least most of them; the sandstone in places was crushed, and, more important, the adjacent cherts very often was crushed and had no cohesion to these sandstone bodies, and some of these masses of sandstone were literally almost plastered against the wall [1704] of the tunnel, running almost parallel to the tunnel rather than across it, as normally sandstone layers

(Testimony of Ben M. Page.)

would; sandstone layers normally would occur interbedded between cherts and shales. In addition to these facts, another feature comes here of a fault which runs obliquely across part of the south tunnel; that fault, added to the unsafety of the ground, and along it there are several persistent water drips.

Q. What is the approximate station of the fault?

A. The fault is in the vicinity of 129+50. And entering the tunnel on the north side at about 130 plus 70 the Orindan formation was encountered, and that juncture between the Orindan and the cherts and shales was rather an unstable contact; some movement had occurred between those two formations in the geological past and there is not much cohesion between the two formations, and at that locality there is a very persistent, although rather small, flow of water that continues right up to the pouring of the concrete. This area was gunited as well as supported with timbers. Further on in the Orindan formation of the south tunnel, from about 135+20 to 136+00 there was an area of local heavy ground with steep fractures made at an acute angle with the tunnel. That area was partly gunited by the Highway District after the Six Companies quit and was partly gunited by the contractors who finished the tunnel.

Again, in the south tunnel there were portions of the Orinda formation that were wet, at least a part of the time, and were soft and unstable while in that

(Testimony of Ben M. Page.)

condition. I will enumerate some of those areas. From about 131+80 to 132+25; from about 133+00 to 133+30; from about 133+70 to 133+85; from about 134+15 to 134+30; from about 135+00 to about 135+15; from about 135+20—I have already mentioned that area, pardon me. I mentioned it in connection with the steep fracture. From about 136+30 to about 136+55; from about 137+50 to [1705] about 137+65; from 138+15 to about 138+30; from 139+5 to about 139+40; and from 139+80 to about 139+90.

During the heavy rains I previously mentioned that occurred in January and February of 1936 the areas of wet spots and the areas of heavy ground were not confined to those portions I have just enumerated. Except for these designated parts of the Orinda formation the material was not particularly bad in the south tunnel, at least in comparison with the cherts and shale which had already been penetrated, but throughout this formation timber support was required.

Q. Have you concluded your description of the south tunnel? A. I believe I have.

Q. You can resume your seat there if you wish. To ascertain the accuracy of your observations upon the character of the material, did you make any laboratory studies of the materials and specimens?

A. Yes, I did; some of the more important rocks were examined under the microscope and where necessary my field identifications were altered and in other cases they were confirmed.

(Testimony of Ben M. Page.)

Q. With reference to the diabase dikes, it is my understanding of your testimony that they had a marked effect upon the surrounding structural rock, on its strength, etc.?

A. Yes. I think perhaps in many respects they were most significant and the most important geological feature in the tunnel area. Their effects were very widespread.

Q. What effect did they have on the adjoining cherts where they were in the cherts?

A. If I may use the blackboard I think I can indicate that with a sketch. The effect of these dikes is not confined to the fact that many of them were weak and soft in themselves. Their effect extended to adjoining bodies. I am drawing now a cross section, a hypothetical cross section along the center line of the tunnel at no particular spot, and I am drawing [1706] two horizontal lines here to represent the cross section of the roof of the tunnel and cross section of the floor of the tunnel. I am now drawing parallel lines to show the bedding of the cherts and shales that adjoin that excavation. That was inclined chiefly, as I have shown. The diabase dikes in general did not follow a bedding between the cherts and shale; on the other hand, a more typical case was this; this illustrates no particular part of the tunnel, it is merely a generality. A diabase dike might occur in this fashion, an extremely irregular shape.

(Testimony of Ben M. Page.)

Q. The witness has drawn some irregular lines crossing the straight lines that he had previously drawn.

A. It might pass through this cherts and shale, like appears in this white area. In such a position a small dike a few feet in thickness might affect a large area here where cherts and shale had left virtually very little actual support. All of this mass of rock is removed from any bond with the surrounding rock.

Q. When you say "all of this mass of rock" what are you referring to?

A. I was referring to the cherts and shale underneath the diabase. The diabase is inclined and some cherts and shale will be underneath. Now, if I may draw another sketch I can illustrate another effect by showing a cross section of the tunnel. This represents a profile cross section of one of the tunnels at no specific point. Cherts and shale extend across the tunnel, dipping toward a course which cannot be indicated, but the diabase in many cases runs parallel to the tunnel, across these layers of cherts and shale, and in some cases these dikes occur in this position, extending outward at right angles to the blackboard, and assuming that dike was a soft dike or of less cohesion than the adjacent cherts; with those whole mass of cherts and shale over the arch of the tunnel has very little natural support on that particular side [1707] of the tunnel. Those are a few of the cases that occurred.

(Testimony of Ben M. Page.)

Q. I believe you said in your description of this material diabase, as you were going through the description of the model a few minutes ago, that you were going to say something about the origin of that material. I do not think you did.

A. I did in a brief way. I said that the diabase was a material which had originated from a molten mass, from a melted mass which cooled and consolidated and prior to its consolidation, this molten material had forced its way into the cracks or fissures in the surrounding rock.

Q. Continuing with your comment upon the model Exhibit 100, you did not give any description of the nature of the Orinda formation. You just mentioned it without describing it. What was its general nature?

A. The Orinda formation consists largely of clay silt stone, which is more or less consolidated mud without very apparent laminations. It consists also partly of sandstone and partly of conglomerates which is more or less consolidated gravel. The Orinda formation has very little cement between the particles that compose it. It has very little natural cement, and it contains a little clay, in places quite a bit of clay, and for those reasons it is very subject to the effect of moisture, it tends to soften when it is wet.

Q. I show you, Mr. Page, Plaintiff's Exhibit 87, Subdivision 1, in evidence in this case, which is a photograph which has been put in the case before

(Testimony of Ben M. Page.)

you testified or attended this hearing, and I will ask you if the lighter colored material in the center of that photograph is the diabase material that you have been describing? A. Yes.

Q. Is that the material which you saw in that particular shape and formation at the point of the cave-in of February 22, 1936?

A. Yes, that is exactly what I saw when I got to the cave-in. [1708]

Q. You recognize it as a photo of that?

A. Yes.

Q. Was there any mention made in the geological report of Dr. Louderback of the presence of diabase dikes?

Mr. Wittschen: Objected to as immaterial, and calling for the opinion and conclusion of the witness, a matter that speaks for itself. The report is in evidence and he is not the one to interpret it. It has to stand or fall on what is in it.

Mr. Smith: Technical terms technically used are subject to definition by people that understand them, and it is undoubtedly perfectly proper for a witness skilled in geology to testify as to whether or not there is any mention made in a report, which is geological in character, of the existence of different materials.

Mr. Wittschen: The Court will be able to interpret the report, I take it; it is in English that can be understood.

The Court: Read the question.

(Testimony of Ben M. Page.)

(Question repeated by the reporter.)

Mr. Wittschen: I want also to add to my objections previously made that under no circumstances is the report of Dr. Louderback part of the contract in this case.

Mr. Smith: The report is in evidence and the witness is entitled to testify as to whether the language of that report states the presence of this material, because of the fact that it is a technical report upon a technical subject, and the witness is qualified to explain it.

Mr. Wittschen: I do not think so. The report needs no explanation, it is readable.

The Court: The report will have to speak for itself. However it may be, aside from the fact that the Court may have to struggle with it with reference to the language indulged in on the geological side, to my mind it will not be helpful on the merits of this case. [1709] The geological report of Dr. Louderback is here. What can this witness add to the fact that will assist the court? However, he may answer subject to the objection, and a motion to strike.

Mr. Wittschen: Exception.

A. No, the diabase was not mentioned.

Mr. Smith: Q. Was the presence of sandstone dikes which you have described mentioned?

A. No, it was not.

Mr. Wittschen: Just a moment, Mr. Witness. I make the same objection on all of the grounds

(Testimony of Ben M. Page.)

previously stated. The report is in. It mentions certain things, it mentions fractures, it mentions formations, and I do not think that report can be picked to pieces by any particular witness. It will have to stand or fall by itself.

The Court: The Court has so indicated.

Mr. Smith: The very way that counsel frames his objection it appears that he may contend that the report does. This witness is entitled to testify as a person trained in this subject-matter which is described in the report, as to whether it is mentioned or indicated in there; he can interpret a scientific report upon a scientific subject and he is able to do so, and can aid the Court in the interpretation by his opinion.

The Court: I do not think it is so vital to the case or the issues or merits of it as would be indicated here. That is the Court's view. I want to acquaint you with that. I have allowed considerable latitude in this case. There has been considerable preparation for the case in anticipation of coming to court; that is obvious. I want to give both sides a proper opportunity, but I do not want to mislead you. I am inclined to convey to counsel on both sides that much of the matter that has gone in here will not affect the merits of this case. [1710]

Mr. Smith: So that your Honor will have the record clear as to the exact purpose in offering the testimony, I would like to make a brief summary of the chain of proof that we feel is made by this sort of testimony.

(Testimony of Ben M. Page.)

The Court: Proceed.

Mr. Smith: In the first place, they called for bids, and held out information to the bidder, and among the information held out the report compiled by a man who is undoubtedly qualified to make such a report, and the attention of bidders is directed to such report, and it is furnished to them by the District.

The Court: Will you pardon me just a moment? The answer to that is it is not a part of the contract.

Mr. Smith: Will your Honor allow me to finish the statement?

The Court: Yes.

Mr. Smith: I had hoped that we might convince you that it is a very material element on two angles of the case, as we are seeking to present it to your Honor, and perhaps from our lack of ability to present it properly you have not got our viewpoint.

The Court: Don't waste your time on lack of ability.

Mr. Smith: The situation is this, the plaintiff comes in and gets this report, and it is in evidence that the report was used by the men who estimated the job for the plaintiff, and the job being estimated on the basis of the report, it was offered as one of the pieces of information, including the specifications, and a pertinent document which influenced the plaintiff's bid; on that theory the plaintiff planned the work and went ahead. On the theory of misrepresentation alone it would be ad-

(Testimony of Ben M. Page.)

missible. We have another theory which makes it admissible also, upon which we stand. We certainly, even if you hold or would assert that the geological report is not a proper part of the proof in this case, because it is not a proper [1711] part of the contract, nevertheless it would be admissible for the purpose of showing that a condition was expected from the standpoint of execution of the contract in the contract time, a positive representation.

The Court: I can see where there are phases of this that the Court can consider it. I limited my answer to you on the contract. It is not a part of the contract.

Mr. Smith: While conceding it is not part of the contract, it certainly is a representation that induced the making of the contract. There is ample authority that it becomes a warranty.

The Court: You can argue that at the proper time.

Mr. Smith: The evidence has to be in in order to argue it.

The Court: But we have the geological report here in its entirety. Now, going beyond that it seems to me it does not serve any purpose.

Mr. Wittschen: We did not object to the physical questions. They all went in with this witness and others, but we do strenuously object to this witness construing that report. We object to it on two grounds, one that it is not part of the contract, as the Court said, and, secondly, it never was a repre-

(Testimony of Ben M. Page.)

sentation. At the proper time we will be prepared to answer Mr. Smith's statement that this amounted to a warranty. It did not amount to a warranty, because warranties have to be in the contract, and I stand on the objection, that what this report contains is a matter for the Court to interpret. The Court can read the report and determine whether it mentions sandstone or not. It does not need this witness to state whether sandstone or diabase was mentioned. Those are all susceptible to anyone who understands the English language, who reads the report.

Mr. Smith: I think the geology report is one of the things [1712] that you can receive information about.

The Court: As I have said, I do not think it serves any useful purpose.

Mr. Smith: Has the Court ruled?

The Court: Read the question.

(The record was here read by the reporter.)

The question was answered. Let it stand.

Mr. Wittschen: Exception. [1713]

Mr. Smith: Q. Was the ground, as you observed it, in the tunnels of such character as to require support throughout?

A. Yes, it was.

Q. Regarding the cave-in of February 22, 1936, which I believe you stated you arrived at a few hours after it occurred, have you approximately the measurements of the diabase at that point?

(Testimony of Ben M. Page.)

A. Yes. I have measured that dike at several places. The north walls of the tunnel where it was first encountered——

The Court: Q. He had in mind this cave-in—the quantity of this cave-in.

Mr. Smith: I asked him if he had measured the diabase at that point.

The Court: The point of the cave-in.

The Witness: Yes.

Mr. Smith: Q. Will you state the measurement of it at that point, approximately?

A. Well, I will have to begin from the beginning. The dike varied throughout in width.

Mr. Tinning: Mr. Smith, may I ask Mr. Page a question? Isn't it a fact the diagram that Mr. Page has put on to this model, —that can be determined from the scale here of the dimensions of the dike, as he observed it?

Mr. Smith: Well, I would think the Court would not stop to measure it with that scale.

The Court: Have you the measurements there?

A. Yes, I have.

Q. What are they?

A. The dike was about 3 or 4 feet wide, when it left the tunnel on the south side. It was about 12 feet thick on the right side of the core. On the north side of the core, it was 4 feet thick or thereabouts. On the north side of the tunnel, it was from 1 to 2 inches, —the north side of the tunnel. [1714] It varied greatly throughout; it was extremely irregular.

(Testimony of Ben M. Page.)

Mr. Smith: Q. Did it traverse the tunnel at right angles to the center line?

A. No; it did not. It traversed the tunnel obliquely——

The Court: Q. That is indicated there on the model? A. Yes, sir.

Mr. Smith: Q. And it was at its widest width at the point on the north side of the south drift?

A. It was. It became narrower again where it intersected the roof of the tunnel.

Mr. Smith: That is all.

The Court: We will take a recess.

(Recess)

The Court: Proceed, gentlemen.

Cross Examination

Mr. Tinning: Q. Mr. Page, you said that your employment for Six Companies commenced, I think it was, on September 23, 1935, within a month after this slide of August 28th; and it extended to September 24, 1936; that was several months after the work stopped there when the Six Companies left the job? A. Yes.

Q. Were all of your observations over the portions of the tunnel which were not excavated, not fully excavated, by Six Companies, made in the drifts; or did you go back there after September 24, 1936, when the other contractor was finishing driving the tunnels?

A. They were all made in the drifts. That is indicated on the description on the model.

(Testimony of Ben M. Page.)

Q. Then, where you traced lines and faults or other formations that may have been, or that are, indicated on this diagram, they are simply approximations of locations taken from what you could observe in the two wall plate drifts?

A. Yes, that's right. I would like [1715] to add that the legend makes that clear, because there are certain conventions regarding the contacts and the faults that show whether I saw those types of contacts or whether they are inferred.

Q. Well, I thought I understood that; that is why I was asking you the question. Would you mind stepping down and looking now at Plaintiff's Exhibit No. 100. At Station 131 plus 00, we have two lines that are roughly parallel, and the one which I first see on the model—it seems to be a dotted line; and I see it was extended at least across the top of the tunnel, —the crown of the tunnel?

A. Yes, that's right.

Q. The line immediately next to it is a fault shown in detail? A. That is correct.

Q. Was the tunnel constructed to 131 plus 00 at the time that Six Companies stopped?

A. Yes, it was.

Q. On the south tunnel? A. That's right.

Q. Now, these faults that you show on the crown of the tunnel, under the legend, "Positions Inferred"—Have I read that correctly? A. Yes.

Q. I am now referring to the fault shown at the crown of the tunnel between 135 plus 00 and 136

(Testimony of Ben M. Page.)

plus 00. How were you able to locate that fault at the top of the tunnel?

A. I saw a fault at several places, and projected it in between, —which is a very conventional geology practice.

Q. Was this portion of the tunnel shown at 136, or between 135 and 136, excavated by Six Companies?

A. The arch was. The walls were not entirely. About half of that area was entirely excavated by the Six Companies.

Q. So you projected it from the reports and the information that was available there?

A. Yes.

Q. Now, to go further toward the east, between Stations 138 and 139, [1716] you have a fault shown in dotted line, which apparently has a solid line at the point where it passes the drift?

A. Yes. That was my intention. It shows I saw it in the drift.

Q. How did you see these gravel glands that are shown in the portions of the tunnels that were not excavated by Six Companies?

A. I saw those in the drifts also.

Q. Are those approximations through the rest of the area?

A. Yes. I merely saw them in the drift; and that is so indicated on this description.

Q. Let's look, for a moment, at the fault or dike between 126 and 127, which is the fault that was in-

(Testimony of Ben M. Page.)

volved in the slide of February 22, 1936: You were able to take careful measurements of that, —the location of those lines as you have shown them here; and that is generally a representation of the exact position of that fault?

A. Yes, it is.

Mr. Smith: Do you mean "fault"? You mean "dike"?

Mr. Tinning: It says "fault" on the side.

The Witness: Assuming certain lines, the dike and associated fault.

Mr. Tinning: Yes.

A. That is correct.

Q. When you commenced to gather the data, from which this model is made, in September of 1935, when did you first report your findings to anyone in the Six Companies' employ?

A. I have no idea. From time to time, I made casual remarks about what I had seen. I don't remember when I gave any formal report.

Q. Well, Mr. Page, to whom did you communicate your casual information?

A. Many people, including Mr. Tom Price and Professor Tolman at Stanford University.

Q. Professor Tolman was employed by Six Companies as consulting geologist prior to your going on the work on September 24, 1935?

A. That is my understanding. [1717]

Q. You were selected by him when you reported to Six Companies? A. Yes.

(Testimony of Ben M. Page.)

Q. To make these tests. Whom, besides Mr. Price, did you communicate what you found there in your geological examination?

A. From time to time, I talked with Mr. Peterson about the observations I had made.

Q. Mr. Otto Peterson?

A. I don't know Mr. Peterson's first name.

Q. The gentleman who is here in court?

A. That is right.

Q. And he was also employed by Six Companies at that time? A. I believe he was.

Q. And in making your report to him, you were making it to a man who was working for the Six Companies on their problem, were you not?

A. Yes.

Q. Your geology work,—the method of survey and the records that you kept,—were matters on which you received directions from Professor Tolman? A. May I have that question?

(Pending question read)

A. Yes, sir; that is correct.

Q. When did you make your first written report on this survey which you made?

A. As I recall, my report was not formally handed in to Six Companies until the fall of 1937.

Q. When did you make it?

A. I had written a report from time to time throughout the work. I redrafted it at least once or twice.

(Testimony of Ben M. Page.)

Q. Then you did not give any written report to Six Companies or to Professor Tolman until some time in the fall of 1937?

A. That is my recollection, yes.

Q. Have you ever made an examination of the geological formation in other—in any other tunnel in the Bay region? A. No, sir; I have not.

[1718]

Q. When did you graduate, Mr. Page?

A. 1933, in June.

Q. This is the only tunnel geological report that you ever made? A. Yes, sir.

Q. Were you familiar with the geological conditions encountered in the Claremont Tunnel?

A. Not at the time of my employment.

Q. Have you studied them since you were employed?

A. Only in a casual way,—an indirect way. I was not in the tunnel; I did not see the ground for myself.

Q. Have you read documents or publications that recite the geology formations encountered in that tunnel?

A. I read portions of the geological report on that tunnel.

Q. As compared with the Broadway Tunnel, do you know whether or not the quantity of water encountered in the Claremont Tunnel was larger or smaller?

(Testimony of Ben M. Page.)

A. I am fairly sure that it was larger in the Claremont Tunnel.

Q. You have stated that there were certain wet areas encountered in the orindan formation in the Broadway Tunnel. Do you know how the water or wet areas in the Claremont Tunnel compared with those in the Broadway Tunnels?

A. No; I do not.

Q. Isn't it a fact, Mr. Page, that the formations that were encountered in the Claremont Tunnel were a similar type of formation,—the so-called Monterey and cherts and Orindan—were generally similar to those encountered in the Broadway Tunnel?

A. The Claremont Tunnel went through the cherts and shale and through the Orindan. It also went through other formations that were not involved.

Q. Yes. Well, I am only referring now—

A. Yes.

Q. —to those that were comparable.

A. Yes, that is correct.

Q. And it is true, is it not, that in the Claremont Tunnel there was very much more water encountered than in the Broadway Tunnel? [1719]

A. That is my general impression.

Q. That would make the conditions more difficult in the Claremont Tunnel than they were in the Broadway Tunnel, would it not?

A. Not necessarily.

(Testimony of Ben M. Page.)

Q. Do you think that there would be any condition in which water,—larger quantities of water,—would not have increased the difficulties in tunnels in comparable formations?

A. Yes, I do, to a certain extent. I will have to qualify my answer.

Q. What do you mean?

A. That I think even within the same formation different portions of it behave differently in regard to water, and that in one situation a slight amount of water is just as bad as a great volume of water in another situation.

Q. Well, it would be highly desirable, from a standpoint of tunnel driving, to find a formation where there was no moisture,—no water,—wouldn't it? A. Not necessarily.

Q. It would not. How about the Orindan?

A. In the Orindan, that holds perfectly true.

Q. In granite, it would not make much difference, would it?

A. Well, granite varies like any rock; just the mere name "granite" does not necessarily mean that it is a strong material.

Q. Well, apparently I am not quite technical enough for you, Mr. Page. You talk about some hard rock that did not require any support?

A. Well, I can think of situations where water would not make much difference.

Q. That was what you meant when you said it did not make much difference in the case of the Claremont Tunnel or this tunnel?

(Testimony of Ben M. Page.)

A. That was part of my intention. May I add that there are other cases where a certain degree of moisture is an advantage?

Q. Is it ever an advantage in the Orindan?

A. Not to my knowledge; I think not. [1720]

Q. And it is characteristic of Orindan, when there is a presence of moisture, that you have a weakness of the structure? A. Yes.

Q. That was true in the Claremont Tunnel and it was true in the Broadway Tunnel?

A. It was true in the Broadway Tunnel. I do not know about the Claremont.

Q. Is there any advantage in finding water in the cherts?

A. There is, under some situations; but by "water" in this case I refer to "moisture." Where the cherts are fractured in a certain manner, the presence of a slight bit of moisture causes more cohesion than the fragments would have if they were dry. That just applies to certain situations, not for any part of the cherts.

Q. Mr. Page, in the case of the Broadway Tunnels, do you know, while you were there, what the largest quantity of water per minute was that was produced in, say, the north tunnel in the cherts?

A. No; I don't. I do recall that, in the south tunnel, one of the District men, whose name slips my mind, mentioned that he had measured a flow of 120 gallons a minute in the south tunnel.

Q. How long did it last?

(Testimony of Ben M. Page.)

A. I have no idea; that is, on any certain determination; but I think it did not last more than a few weeks at the most, and then it dwindled.

Q. In other words, it was water when the tunnel was driven through one of these areas of broken cherts, was it not?

A. No; it came out of one of the best portions of the cherts.

Q. Came out of solid cherts?

A. It came out of a fault which is indicated on this exhibit.

Q. Was the fault in broken——

A. No. The fault was between the bedding planes of the cherts and the cherts itself was in better condition than most of that formation was.

Q. This was one of those faults where there had been movement without a grinding up or pulverization? A. Yes. [1721]

Q. And at that place there was this considerable flow of water which your memory now indicates may have run for several weeks? A. Yes.

Q. Was there sufficient water flowing out of that fault to cause the floor of the tunnel to have water flowing over the entire floor of the tunnel?

A. I don't recall. I do recall that, for the most part, within, say, a week or two after that flow was encountered, all the water was kept in the drainage ditches.

Q. Did you see the tunnel immediately following the time that water was encountered?

(Testimony of Ben M. Page.)

A. Yes, I did.

Q. Did you see it when it was flowing over the floor of the tunnel at any time?

A. Yes; but I cannot remember the depth.

Q. How large an area was it flowing over on the floor; what was the spread?

A. As I recall it, 6 or 8 feet wide; and my recollection is that for a time that floor was covered by water to a slight depth; it was not deep. [1722]

Q. What do you mean by a slight depth, an inch, or two inches, or a foot, or two feet?

A. The water, as I recall it, did not go over the tops of the rails.

Q. How deep would that be?

A. Less than a foot.

Q. Considerably less than a foot? A. Yes.

Q. About three or four inches?

A. Yes, something in that order of magnitude, perhaps six inches.

Q. Now, you mentioned at considerable length sections in the Orinda in which there was wetness at various places, and you have indicated on the diagram what they were. What would be the flow of water, the largest amount of water that was coming out of any of these areas that you have described in the Orinda?

A. I don't know. It was collected in sumps and pumped out. The engineers could probably tell you but I could not.

(Testimony of Ben M. Page.)

Q. Are you referring now to the east portal of the tunnel?

A. Yes, the drift driven from the east portal.

Q. Did you ever see any slides in the east portal of the tunnel?

A. I saw a small slide in the north drift of the north tunnel.

Q. That was on February 11, 1936?

A. Yes.

Q. At that time the north tunnel had been excavated from the east portal toward the west a distance of some 40 or 50 feet, had it not?

A. Does your question apply to the drift or to the completed tunnel?

Q. To the tunnel.

A. As I recall, the core was still in place; the rings had been taken out for 40 or 50 feet.

Q. And the concrete put in? A. Yes.

Q. And there was a slide on that face, was there not, on that same day, the slide that you have described on your model?

A. A slide on the face?

Q. On the face of the core?

A. I don't know about that.

Q. Didn't you see that?

A. No, I did not. [1723]

Q. Were you only observing in the drift?

A. I spent a large part of the time during that period on the west side, because that is where the excavation was in progress. I did most of my

(Testimony of Ben M. Page.)

study in the east portal, when the excavation was suspended.

Q. On the date that you have indicated the slide in the wall plate drift of the north tunnel, on February 11, 1936, did you observe the condition at the east portal in the north tunnel?

A. I suppose I did, but I can't remember what I saw.

Q. Isn't it a fact that the slide that you saw was a part of the slide that occurred when the pumps broke down at the east portal and when the face of the tunnel, in the north tunnel, was submerged with water to a depth of 10 to 12 feet by rainstorm?

A. I don't remember that. I do remember the rainstorm, and that there was a general wet condition in the drift, but I don't remember the condition of the core.

Q. Was the wall plate drift where you have described this slide occurred entirely closed by the slide?

A. Yes, it was for a distance of perhaps thirteen feet.

Q. Could you see both sides of the slide, both the east and west sides?

A. No, I did not. I merely took the measurement of the concrete for the east limit of that slide. I do not recall ever going around the east side of the slide.

Q. How did you fix the location of the east side of the slide, then?

(Testimony of Ben M. Page.)

A. By the fact that none of that concrete had caved in, according to some of the engineers.

Q. Somebody else told you it had not caved in, so you took that as the location? A. Yes.

Q. Now, these dikes that you have referred to, I think you said the sandstone was a sedimentary rock and that it was not usual to call the sandstone intrusion a dike, but for the purpose of clarity [1724] you were using that term in this tunnel?

A. I think it is usual to call them dikes when they occur in these situations.

Q. What do you mean by "these situations"?

A. Where the material cross cuts the surrounding rock instead of being interbedded.

Q. In other words, a dike, if I understand you, then, is something that is interjected into other material? A. Yes.

Q. Cutting into and separating it?

A. Yes.

Q. If the sandstone laid free in the natural strata of other material it was something laid down by nature and not by intrusion?

A. Yes, in generality that would be true; it is conceivable that it might be intruded between layers but that would be difficult to ascertain.

Q. What causes sandstone to intrude between layers of other material as it did in this Broadway tunnel in the formations you saw in the Broadway tunnel?

(Testimony of Ben M. Page.)

A. That is an unanswered question, no one knows; I should not say it is entirely unanswered, because there have been some theories, but they are not generally accepted by all geologists.

Q. You have given us some theories here on a number of matters. Would you mind giving us your theory about a sandstone intrusion into other material?

A. Yes, I would object to giving a theory on it. The fact is that I hesitate to try to explain their presence.

Q. You would not have the theory that the District put them there, would you?

A. No, I would not pull that theory.

Q. I suppose in regard to the diabase dikes you would also agree that the District did not put them there?

Mr. Smith: I object to the question as silly and argumentative.

Mr. Tinning: Q. Your answer would likewise be the District did not put the sandstone there, or the diabase there? A. Yes.

Q. How about the diabase dikes, what explanation can you give for those?

A. There is a generally accepted explanation for the [1725] diabase. The material arrived in a molten condition which filled the cracks or fissures, in many cases apparently widening the cracks or the fissures.

(Testimony of Ben M. Page.)

Q. In other words, it came in under pressure while molten? A. Yes.

Q. And expanded and then cooled in that location? A. Yes.

Q. Where does that molten material come from?

A. Nobody has ever seen the material in its native haunts, so to speak. The material, it is believed, comes from local areas of melting at depths, and only at depths in the outer part of the earth; in other words, I do not mean that they come from the center of the earth.

Q. It is like a volcano, is it not?

A. Not necessarily. If the material ever reached the surface a volcano might result.

Q. You find similar material reaching the surface through volcanic formation, do you not?

A. To a certain extent you do, yes, although I have never seen the alteration that I have described in the case of any surface lava flows.

Q. Mr. Page, the alteration is something that occurred after the material arrived and was put into place where it came to rest? A. Yes.

Q. Now, we are talking about how it got there and not what happened to it afterward. What I am trying to get clear in my mind is where it came from. It came from hot rock which was pushed up there by pressure from below? A. Yes.

Q. You also find a like condition in a volcano, do you not? A. Yes.

Q. Now, this rock not reaching the surface was

(Testimony of Ben M. Page.)

acted upon by something. Do you know what it was that acted upon it, water, or what?

A. No, I do not think so. I know that the reagent was some sort of a chemical solution.

Q. That would be something that was carried there with the water?

A. If that is so I assume that would be correct.

Q. You did not see any other liquid in these rocks except water, [1726] did you, when you were looking at them?

A. Not in the diabase.

Q. So it would be a fair assumption that whatever it was that caused their alteration it was carried to those rocks by water? A. Yes.

Q. And over the years, whatever they were that were carried into contact with this intrusion of diabase, were the chemical constituents of the diabase altered, or was the physical formation altered by it?

A. The chemical constituents which, of course, involved a lot of physical properties.

Q. I think you told Mr. Smith earlier when you first saw it you had some doubt of what it was, you thought it was a gouge?

A. That is true.

Q. I presume you put it under a microscope and studied it to see what that material actually was?

A. Yes, I realized that if it was a gouge it was very peculiar gouge, because it occurred in such irregular bodies.

(Testimony of Ben M. Page.)

Q. Did you make a chemical analysis of this material?

A. No, I did not. I made a petrographic study under the microscope.

Q. You determined what the constituent parts of this material were by visual inspection through a microscope?

A. To a large degree I did determine.

Q. You did not determine it in any other way except by a visual inspection through a microscope?

A. Only in this sense, that I tested the material with acid to see if it contained carbonates.

Q. Did it? A. Yes.

Q. Is that a characteristic of diabase?

A. It is not.

Q. What is a diabase?

A. A diabase loosely defined is an igneous rock with a characteristic texture.

Q. What are the chemical constituents of a diabase?

A. A diabase consists largely of various silicates, silicates of sodium, calcium, [1727] aluminum, iron, magnesium, various other chemical elements.

Q. Was this material that you saw acted upon by something that changed the chemical formation?

A. Yes, and it changed the chemical constituents.

Q. And gave it some carbonate qualities?

(Testimony of Ben M. Page.)

A. Yes.

Q. What, in your judgment, would bring the carbonate components to that chemical mixture that you speak of?

A. In my judgment it came from a rising solution, it came up from the earth.

Q. What were the things then that bore the carbonates into the diabase? Coal is a carbonate, is it not?

A. No, it is not.

Q. What is? A. What is coal?

Q. No, what is a carbonate?

A. Carbonate is a chemical compound which contains a certain radical expressed by CO_3 and certain chemicals.

Q. What was it that formed the CO_3 in this mixture that you found?

A. That, again, takes us into the realm of theory; undoubtedly the solution that— I should not have said "undoubtedly," but probably the solution that performed that result contained carbon dioxide or some other reagent that could convert the minerals into carbonates.

Q. What is the common name that laymen, like most of us here, would know—what name would you give to those things that would bring that carbonate deposit?

A. I do not know of anything that would not be technical.

(Testimony of Ben M. Page.)

Q. We will pass that. Now, your diabase dikes are intrusions, and your sandstone dikes are intrusions. Do you know whether those formations were characteristic of the hills that lay on the east side of San Francisco Bay through which other tunnels have been driven? A. No, I do not.

Q. Then when you say heavy material, that the ground required support, [1728] you are referring particularly to this ground that you saw there in these tunnels? A. Absolutely.

Q. You have no knowledge, whatsoever, of what conditions were encountered in the driving of other tunnels in the general area of the Broadway Low Level tunnels?

A. Yes, in a general way I have.

Q. How, if at all, did the material through which the Broadway Tunnel was driven differ in general from those through which other tunnels were driven?

A. Since I was not in the other tunnels I can only rely upon reports about them, but those reports make no mention of altered diabase; they make no mention of sandstone dikes.

Q. Do you, from that, draw the conclusion that this tunnel was the only tunnel in which those formations were encountered?

A. I did not draw any conclusion regarding that.

Q. You don't know, do you?

A. No, I don't know.

(Testimony of Ben M. Page.)

Q. And if it was a fact that in the Claremont Tunnel, in driving through the Orinda formation they found pieces of cherts, pieces of sandstone, sort of isolated in the formation, you would find a condition that would be the same as you had in portions of the Broadway Tunnel, would you not?

A. That does not exactly portray the conditions in either place, from what I heard of the Claremont Tunnel, and what I know of the Broadway Tunnel.

Q. I have tried to follow you, and I understood you to testify that in the Orinda at places you found isolated bulges of other material. I am not talking now about what you call Dikes, but I am talking about pieces of sandstone and pieces of cherts that you said apparently had been moved into the Orinda when it was laid down.

A. No, you misunderstood me. I referred to another sandstone formation, the sandstone that is indicated in blue on this exhibit No. 100. [1729]

Q. Where were these isolated globules or particles of material found isolated in other material, in what part of the tunnel?

A. A great deal of the sandstone that occurred within the westernmost half of the Broadway Tunnel, that sandstone was contained here and there with various fragments of cherts and shale, which were isolated entirely and surrounded by the sandstone.

(Testimony of Ben M. Page.)

Q. In your opinion were those pieces of foreign material laid down in the sandstone when the sandstone was laid down by the water that formed it?

A. Not in my opinion.

Q. How did it get there, in your opinion?

A. In my opinion they got there during the emplacement of the sandstone, whatever that emplacement was.

Q. What do you mean by that?

A. I mean that the sandstone occupies an abnormal position in relation to the surrounding rock, and that instead of being deposited in layers between the beds of cherts and shale with sandstone, it reached its present situation in some other way.

Q. You mean pressed up there by some internal force? A. That would be one theory.

Q. What other way could it get there?

A. It might have dropped down from above, but I do not hold that theory.

Q. United Air Lines were not running then. How could it drop down from above?

A. In some situations where sandstone overlies another rock the inconsolidated sand has filtered down into cracks in underlying rocks and there solidified through cementation.

Q. Would pieces of cherts and pieces of this other material isolated in the sandstone be formed in the way you have just referred to?

A. It is very doubtful.

(Testimony of Ben M. Page.)

Q. Then why go into it, if it doesn't happen that way? What, in your opinion, was the reason for these pieces of broken material you [1730] found in the sandstone?

A. I can give you a theory which I considered but I never drew any definite conclusion about these sandstone dikes.

Q. Mr. Page, if you don't know, if you have not any theory that you believe is correct, I do not want to go into it. Have you an explanation that you think is a correct explanation of that condition?

A. I have an explanation but there are defects in it.

Q. Then we will go on to something else. Now, the faults which you referred to, as I understand it, are planes in which there has been movement of some kind? A. Yes.

Q. And sometimes these faults are formed in such a way that there is broken material at the point of contact, I think you used the words "rock flour"? A. Yes.

Q. That is a form of gouge? A. Yes.

Q. When you find fractures such as you have shown in this tunnel formation you have always had a movement at the point where the fractures occurred, have you not?

A. Yes, at least, if you are referring to fault.

Q. I am referring to what you said here were faults. A. Yes, that is correct.

Q. That you have shown? A. Yes.

(Testimony of Ben M. Page.)

Q. So that those indicate wherever they are to be found in this model, that in the hills at the point where those were encountered there had been movement in the material? A. Yes.

Q. And it is likewise true throughout the San Francisco Bay region that you find broken sections of material throughout those hills, is it not?

A. In many places in the hills that is true.

Q. And it is characteristic of those hills on the east side of San Francisco Bay, that you find this broken, fractured material?

A. I don't know that it is characteristic as to all of them, because [1731] I have not visited every part of the hills on the east side of the Bay.

Q. You have heard of the Wildcat Fault, the Pinole Fault, and San Andreas Fault, and Hayward Fault, haven't you? A. Yes.

Q. Those, with the possible exception of the San Andreas Fault, are all in the student books about the East side of San Francisco Bay, the very hills through which this tunnel passes?

A. They may be in some of the student books, some of the faults you have mentioned are well known and others are not.

Q. You do not mean that Professor Tolman hasn't them in his book?

A. That he has them?

Q. Hasn't them in his book?

A. I have never seen any of Professor Tolman's books.

(Testimony of Ben M. Page.)

Q. You do know, as an expert geologist, that there are a number of faults in the area in which these tunnels are built, and that the tunnel, itself, passes through a well-known fault on the geological map published by the United States, known as the Wildcat Fault?

A. Yes, they go through that, at least one is designated as the Wildcat Fault on the map you refer to.

Q. You know what that fault is, don't you?

A. I do not.

Q. Don't you believe in the United States Geological map?

A. I have no reason to believe it or to not believe it, but geologists are usually skeptical.

Mr. Tinning: That is all.

Mr. Marrin: No further questions.

The Court: We will take an adjournment now until tomorrow morning at ten o'clock.

(An adjournment was here taken until tomorrow, Wednesday, May 25, 1938, at ten o'clock a.m.)

[1732]

Wednesday, May 25, 1938;

10:00 o'Clock A. M.

THOMAS L. PHILLIPS,

called by the plaintiff; sworn.

Direct Examination

Mr. Smith: Q. Where do you reside, Mr. Phillips? A. 983 Park Lane, Oakland.

Q. What is your business or occupation or profession, Mr. Phillips?

A. I am a civil engineer, employed by the Western Pacific Railroad Company. My title with the Railroad Company is Principal Assistant Engineer.

Q. Are the duties of that position similar to Chief Assistant?

A. It is in fact Assistant Chief Engineer.

The Court: That means that the assistant does the work, I suppose? A. Yes.

Mr. Smith: Q. Mr. Phillips, will you state, for the benefit of the Court, your experience as an engineer, commencing with the first engineering work that you had anything to do with; state it in general?

A. My first work in the engineering profession, I might say, was in the beginning or early part of 1902. I was employed on an engineering party that was running a survey up the Klamath River, and I started in as an ax man and finished up as instrument man on that job, in November of the same year.

(Testimony of Thomas L. Phillips.)

Q. What followed?

A. The following winter I was on a survey from Livermore through Dublin Canyon to the waterfront in Oakland; that work was supposedly for the advance surveys of the Western Pacific.

Q. That was at the time of the construction of the original Western Pacific Railroad?

A. That was considerably in advance of that time.

Q. In advance of that. Proceed.

A. The following spring,— [1733] the spring of 1903,—I was on surveys in Mendocino, Sonoma and Humboldt Counties, California, for the Atchison Topeka & Santa Fe. I was instrument man on that work. During the next two years, I was on various work, including the construction of a section of the Albion Lumber Company's Railroad and the extension of the McCloud River Railroad Company, which is a part of the McCloud River Company.

Q. Where was the Albion Lumber work situated?

A. In Mendocino County.

Q. Where was the McCloud work?

A. In Siskiyou County, California.

Q. In what year was that?

A. That was in 1904.

Q. What next occurred in your experience?

A. In the early part of 1905, I was employed as engineer for the Eel River Power and Irrigation

(Testimony of Thomas L. Phillips.)

Company. They had a project in Mendocino County some 25 miles northeast of Ukiah. This project comprised quite an extensive dam across the main South Eel River and a tunnel through a section of the Coast Range Mountains into Potter Valley.

Q. What type and size of tunnel was that?

A. The tunnel was about 9 by 9; approximately 5800 feet in length.

Q. Was that your first experience on tunnel construction? A. Yes, it was.

Q. What year was that?

A. That was in 1905.

Q. What were your duties?

A. My duty was engineer of surveys, primarily to lay out the work. I did not do any of the designing work. I did a great deal of inspection, however.

Q. After that employment and work, what was your next assignment or duty?

A. That work closed down, or nearly closed down, in November; and I, at that time, got employment with the Western Pacific Railroad Company.

Q. In what capacity?

A. As instrument man.

Q. Where and what were your duties?

A. The section of work it [1734] was on was between Livermore and Hayward, California; and my duties were that of instrument man.

(Testimony of Thomas L. Phillips.)

Q. What were they doing,—surveying or constructing,—at that time?

A. Both surveying and constructing, largely constructing. It was building the section of the Western Pacific between Livermore and Hayward.

Q. Was any tunnel work involved in that work?

A. Yes; there were two railroad tunnels and a water tunnel for the Spring Valley Water Company in Niles Canyon, Alameda County.

Q. Will you describe the character of the tunnels, as to their size and length,—the general nature?

A. The railroad tunnels,—one of which was approximately 4300 feet in length; and the other, approximately 400 feet in length,—they were standard tunnels, the excavation for which was approximately 21 feet wide by 25 feet high. The water tunnel was nearly 900 feet in length, and the excavation for that was about 9 feet by 9 feet.

Q. What was the approximate location of those tunnels; were they in Alameda County?

A. Yes, they were in Alameda County, some 3 or 4 miles northeast of Niles.

Q. How long were you engaged working at those tunnels, or for that railroad on which those tunnels were located?

A. I was there about two years and a half.

Q. What duties did you have, if any, in connection with the tunnels?

(Testimony of Thomas L. Phillips.)

A. My duties were to see that the work was done according to the established lines and grades and plans and specifications, and to make inspections and make recommendations as to how much timbering and the spacing it should be placed in the tunnels.

Q. Were they timbered tunnels?

A. Yes, they were.

Q. Throughout?

A. Not throughout. One of the portals was concreted; and there was a section of concrete installed under the [1735] point where the Spring Valley Water tunnel passed over.

Q. Which tunnel was that?

A. That was in the longest tunnel, known as Tunnel No. 1,—Western Pacific Tunnel No. 1.

Q. That is on the mainline of the Western Pacific now? A. That's right.

Q. That is its present number on the main line?

A. That's right.

Q. Outside of the sections of that tunnel that you say were concrete, was the entire balance timbered or not timbered?

A. It was all timbered except the section concreted.

Q. What specific duties did you have inside the tunnel, if any, in the discharge of the general duties that you just described; what did you actually do, yourself?

(Testimony of Thomas L. Phillips.)

A. I actually ran the line and grade to establish the points for the contractor to set the linings, whether they were timber linings or concrete linings.

Q. Were those tunnels built by company forces of the owner or by private contract with outside parties?

Mr. Wittschen: Objected to as immaterial. I think, under the guise of qualifying the witness, counsel is about to go into the situation of how they ran their lines and grades in those tunnels.

Mr. Smith: No; that was not the purpose at all. I was just going to show his duties.

Mr. Wittschen: It is immaterial, in any event.

Mr. Smith: It is not immaterial at all. I want to show the experience of the witness in handling work: whether he handled construction work for the owner entirely or—

The Court: Read the question.

(Pending question read.)

The Court: Proceed. [1736]

Mr. Wittschen: Note an exception.

The Witness: A. They were largely built by contractor. However, I should say approximately one-half of the longest tunnel, or Tunnel No. 1, was finished by company forces.

Mr. Smith: Q. After you finished working, or when you finished what you were doing there, what did you next do; what were your next duties?

(Testimony of Thomas L. Phillips.)

A. I was promoted to assistant engineer and transferred to San Francisco, where I completed the freight terminal of the Western Pacific in this city.

Q. What was the general nature of that work?

A. The work comprised a wharf, railroad yards, freight terminal and a tunnel 1625 feet in length.

Q. Where is that tunnel located?

A. It is in the Potrero Hills, San Francisco.

Q. Approximately what streets?

A. About 22nd and Mississippi on one end, and 18th and Mariposa, I believe, on the other; it runs diagonally through the city blocks.

Q. Is that a timbered tunnel?

A. Yes, it is timbered throughout.

Q. Is that tunnel approximately the same size as the mainline tunnels?

A. It is; the standard mainline tunnel construction.

Q. It is designed and built for the passage of railroad trains? A. Yes.

Q. What were your duties on the construction of the terminal, including the tunnel, in general, as assistant engineer in charge?

A. To supervise the work, make inspections and see that it was carried out in accordance with the plans and specifications.

Q. In particular, with regard to the tunnel, what were your duties? Were they the same as you have just mentioned? A. Yes.

(Testimony of Thomas L. Phillips.)

Q. Was that tunnel built by company forces or by private contract? [1737]

A. It was built by contract let to the Western States Construction Company.

Q. You were acting for the owner of the tunnel?

A. That's right.

Q. During what years and for how long a time did that employment run; what was the date?

A. I started there in 1908, and construction work was finished in the latter part of 1909.

Q. After you had finished your duties in the construction of this terminal, including that tunnel, what did you next do, Mr. Phillips?

A. The Western Pacific started operations, and my duties were spread over the Western Division of the Western Pacific, and covered many things.

Q. What is the geographical extent of the Western Division?

A. From San Francisco to Gerlach, Nevada, including various branch lines.

Q. Were there any tunnels, aside from the tunnels you have mentioned, in Alameda County and in San Francisco, in that division?

A. Yes. All told, there are, as I now recall, 36 tunnels.

Q. What were your general duties as division engineer, particularly in connection with the tunnels?

A. I made frequent inspections of tunnels in regard to the position of the lining of the tunnel

(Testimony of Thomas L. Phillips.)

to the center line of the track, to insure that there was sufficient clearance for safety for the passage of trains, and also had a great deal to do with the company forces, or company gangs, that were doing any necessary repair work in these tunnels.

Q. Generally in charge of maintenance of these tunnels then; is that correct?

A. Yes, I had a great deal to do with the maintenance of the tunnels.

Q. How long did your duties consist of the character you just described?

A. Along the lines that I have just described, until about the beginning of 1916.

Q. Approximately 8 years?

A. 7 or 8 years.

Q. What did you next do? [1738]

A. Beginning with the spring of 1916 I was engineer in charge of concrete lining for the Western Pacific tunnel in Plumas County known as Spring Garden Tunnel. Part of this tunnel had previously been concrete lined, but it was desired to complete the job, so we spread the work over a period of three years, and I was in charge during those three years, and in that time concrete-lined 6600 feet of the tunnel.

Q. That was a standard railroad tunnel?

A. Yes.

Q. And had previously been timbered?

A. That is right.

The Court: Q. Was it timbered in its entirety?

(Testimony of Thomas L. Phillips.)

A. It was originally, yes.

Mr. Smith: Q. What was the total length of that tunnel?

A. The total length is 7335 feet.

Q. During that same period that you were doing that lining job on the Spring Garden Tunnel were you in charge of the other work?

A. Yes, in the early part of 1917 I located and started the construction of a branch line from the easterly end of the Western Pacific, Chilcoot Tunnel, to Reno, Nevada. This line is 32 miles long.

Q. That work, as I understand you, you did while you were also doing this work at the Spring Garden Tunnel? A. Yes, that is correct.

Q. Following that period, which lasted two or three years, what did you next do and where, and how long a period?

A. In 1918 I was appointed Division Engineer of the Western Division of the Western Pacific. The line, as I described, was between San Francisco and Gerlack, Nevada. A division engineer's duties are having full charge of the maintenance of way for the railroad company over their respective divisions, and referring particularly to tunnels it was my duty to see that all of the tunnels under my jurisdiction were in [1739] proper shape and in safe condition for the passage of trains.

Q. That division is the same as you mentioned previously, from San Francisco to Gerlack?

A. That is correct.

(Testimony of Thomas L. Phillips.)

Q. How long did your duties continue as you have just described when you resumed them in 1919?

A. I was in that position for two years, until July, 1920.

Q. Then what did you do?

A. I located and constructed a line up the middle fork and south fork of the Feather River for the Hutchinson Lumber Company.

Q. You say you located and constructed a line. What do you mean, a line of railroad?

A. A line of railroad, standard gauge railroad.

Q. You were not then employed by the Western Pacific, you had left that employment?

A. I was on leave of absence for a short time and later in that year went back in the employment of the Western Pacific and constructed a portion of this line which is now owned by the railroad company, the Western Pacific Railroad Company.

Q. Where was that line located, in what county?

A. In Butte County.

Q. Any tunnels in it? A. No tunnels.

Q. As I understand it, it connects with the Western Pacific and is now part of the Western Pacific?

A. Part of it is part of the Western Pacific and the other part is still in the ownership of the lumber company.

Q. But the whole line is connected? A. Yes.

Q. After you went back to the Western Pacific what was your next title and duties and for how long?

(Testimony of Thomas L. Phillips.)

A. My title when I went back with the Western Pacific in 1921 was Assistant Engineer, but my duties and position were somewhat extended. I covered the entire system.

Q. Where did the system run from?

A. From San Francisco to Salt [1740] Lake City, including the various branch lines.

Q. What was the general nature of your duties?

A. General engineering work covering any subject I might choose to take up, as well as such other duties as the Chief Engineer might delegate to me.

Q. For how long a period did you discharge this particular office? A. Until June, 1927.

Q. That is a period of approximately six or seven years? A. Yes.

Q. Did you have charge of any construction work during that time?

A. Well, I had charge of all of the construction work the company had during that period. I do not recall just now of anything of major importance. I did, however, perform the same duties as I had theretofore in regard to the inspection of various structures, including bridges, tunnels, or any other features.

Q. But you did not construct any tunnels during that period?

A. No, I did not construct any tunnels.

Q. You said 1927 was the end of that particular time. What happened then, and what have you done since?

(Testimony of Thomas L. Phillips.)

A. The reason I mentioned June 1927 was I was promoted at that time to Principal Assistant Engineer.

Q. The same office you now hold?

A. The same office I now hold.

Q. During that period, since June, 1927, have you had charge of any construction work?

A. Yes.

Q. Including any tunnels? A. Yes.

Q. Just state to the Court what that work was, what you had to do with it.

A. In the early part of 1929 I started the location of a railroad between Keddie, in the Feather River Canon, to Bieber, a distance of 112 miles.

Q. Where is Bieber, is it north, south, east or west of Keddie?

A. Almost due north of Keddie. Keddie is in Plumas County and Bieber is in Lassen County, California. [1741]

The Court: Is that the line through Modoc?

A. No, that is not, that is the Southern Pacific.

Mr. Smith: This line that you mentioned is a line that was supposed to connect with the Great Northern?

A. It does connect with the Great Northern at Bieber.

Q. It was constructed for that purpose?

A. Yes.

Q. How many tunnels are there on that line of railroad? A. Nine tunnels.

(Testimony of Thomas L. Phillips.)

Q. What is the approximate length of the nine tunnels, taken together? A. About 3500 feet.

Q. What kind of tunnels are they, in general?

A. They are standard railroad tunnels. However, on this line we built the tunnels on the curve section a foot wider than is generally built.

Q. That is because of the curve? A. Yes.

Q. Were they hard ground tunnels, or were they soft ground tunnels?

A. They were all soft ground tunnels with the exception of one, which would probably be classified as a hard ground tunnel, because it was in hard lava formation.

Q. With the exception of the one that you mentioned, did the others require timber support or other support, artificial support? A. Yes.

Q. What period of time was embraced in your duties in the construction of that line between Keddie and Bieber?

A. The construction started in August, 1930, and was completed in November, 1931.

Q. Was that work done by an arrangement with private contractors or was it done by company forces?

A. It was done by a contract with the Utah Construction Company and W. A. Bechtel Company.

Q. The same two companies that have been mentioned in this case as part of the Six Companies?

A. Yes. [1742]

Q. After you concluded the construction of that

(Testimony of Thomas L. Phillips.)

line what further construction work did you have to do with, if any?

A. In 1932 I had charge of reinforcing the concrete lining of tunnel No. 32 on the Western Pacific. This tunnel is near Keddie.

Q. How long a tunnel is that?

A. About 500 feet. The reinforcing work, however, covered somewhere in the neighborhood of 200 feet of the tunnel.

Q. What other construction work did you have anything to do with during that same period, including the planning of tunnels, or estimating the same, or constructing the same?

A. I have had various construction work, such as extending side tracks, some of which involved heavy work.

Q. Regarding the Dotsero Cut-off, did you have anything to do with that?

A. Well, in 1932 I made a study and report of the Dotsero Cut-off Line.

Q. Where is that line of railroad located?

A. It is located in Colorado.

Q. Are there any tunnels on that line?

A. Yes, there were four or five tunnels.

Q. Did you recommend the way that those tunnels should be lined up and constructed?

A. Yes, I made a report on that line and in regard to the location and the approach to the tunnels, and length of tunnels, and the line was built substantially along my recommendations.

(Testimony of Thomas L. Phillips.)

Q. That, however, was not built by the Western Pacific?

A. No, that was built by the Denver & Rio Grande Railroad Company.

Q. Was there any other construction particularly with reference to tunnels that you had anything to do with since 1932?

A. No out and out construction. I have had a good bit to do with the maintenance of tunnels, and inspection of the various tunnels along the Western Pacific. [1743]

Q. When did you first hear of the Broadway Tunnel? A. August 5, 1935.

Q. What happened then?

A. I went through that tunnel, starting in the afternoon of August 5, and spent the entire balance of the afternoon and the evening going through the entire workings of the tunnel.

Q. Were you employed by the plaintiff in this case at that time?

A. Yes, I was employed by Mr. Bechtel, President of the Six Companies, the contractor on that tunnel.

Q. What duties were given you?

A. I was employed in an advisory capacity to see if I could make any suggestions or recommendations to help the contractors solve some of the problems they had met in this construction work.

Q. Did you consult with any other engineers at that time?

(Testimony of Thomas L. Phillips.)

A. Yes, I consulted with Mr. Tibbitts, particularly, also with Mr. Peterson, and various other ones.

Q. You went over there on August 5, as I understand it. A. Yes.

Q. What did you observe as to the construction on the first visit? By the way, was that your first visit to the tunnel?

A. That was my first visit to the tunnel.

Q. What did you observe concerning the condition of the construction at that time?

A. I observed that the ground through which the tunnels were being driven was very blocky in places, and had a variable condition; that the tunnels, so far as the workings were open, were timbered, and that the timbering in places was taking a very heavy ground load.

Q. The contractor was engaged in excavating at the time when you first went there, was he?

A. Yes, the excavation was going on.

Q. Did you visit the tunnels in connection with your employment upon occasions after the date you have mentioned? A. Yes, many times.

Q. How frequently until June, 1936 did you visit the tunnels? [1744]

A. I visited them on an average of about once a week until the end of March. I made one additional visit to the tunnel in the early part of June. As I recall, I made a total of about 37 or 38 visits to the tunnel during the time that I mentioned, between August 5, 1935 and the end of March, 1936.

(Testimony of Thomas L. Phillips.)

Q. Those visits, were they casual, or did you make it a point to go over the entire work?

A. I went there for the purpose of making a full inspection of the tunnel on each visit.

Q. What was your habit, did you go into the headings on those visits?

A. Yes, I went through all the work, as a general rule. There might have been some occasions where I did not see the extreme points, but I went into the drifts and into the top headings and visited the east end of the tunnels on several times; but the west end of the tunnel is the one that I was particularly interested in and at each of these visits I always visited the west end.

Q. Then, as I understand it, you visited the west end every time and the east end most of the time on those visits, is that correct?

A. I would say I visited the west end every time and the east end many times, I don't know just how many times I visited it.

Q. You were in the drift where the men were working? A. Yes.

Q. Mr. Phillips, speaking of the month of August, 1935, upon how many occasions during that month did you visit the tunnels in addition to your first visit, which you stated was August 5, if you know, just approximately?

A. Five or six times.

Q. Six times in addition?

A. Five or six times.

(Testimony of Thomas L. Phillips.)

Q. How frequently were those visits spaced after August 5, upon what dates, approximately?

A. I could not recall exactly. I remember I was there on the 11th, and I remember I was there on the 28th, the forenoon of the 28th.

Q. That was the forenoon of the day on which later the cave-in [1745] occurred?

A. That is correct.

Q. Were you there in August after the cave-in?

A. Yes, I was there the next day after the cave-in.

Q. What time did you arrive after the cave-in, the next morning, or the same evening?

A. The same evening; I arrived at about 8 or 8:30.

Q. In other words you were twice on the 28th of August, before the cave-in and after the cave-in; is that right? A. That is correct.

Q. Now, Mr. Phillips, on these visits were you accompanied by others, other engineers, or did you meet with other engineers, including any engineers of the District, or the contractor?

A. Well, very often I went through the tunnels with others. I went through several times with Mr. Tibbetts, I think several times with Mr. Peterson, with Mr. Hindmarsh and Mr. Price and others.

Q. If you observed anything did you communicate the same and make recommendations as an engineer to the contractor? A. Yes.

Q. During the month of August, 1935, did you

(Testimony of Thomas L. Phillips.)

meet with Mr. Boggs, the engineer for the Joint Highway District, the defendant in this case?

A. Yes.

Q. Upon how many occasions, if more than one?

A. On two occasions.

Q. What were the dates of those meetings, if you remember?

A. On August 16 and August 19, if I recall correctly.

Q. Who was present when you met with him, if anybody else?

A. Mr. Tibbitts and Mr. Barkley.

Q. Who was Mr. Barkley?

A. I understand Mr. Barkley is Mr. Boggs' assistant.

Q. Where were these meetings that you had with Mr. Boggs, were they at the tunnel or elsewhere?

A. At Mr. Boggs' office——

Q. In downtown Oakland?

A. Yes, on Webster street, I think.

Q. What was the sum and substance of the discussion between you and Mr. Boggs? [1746]

Mr. Wittschen: Objected to as immaterial, and calling for hearsay testimony, and conversations which are not binding on the District.

The Court: I will allow it so that he will have a record.

Mr. Wittschen: Note an exception.

A. We discussed the matter of——

Mr. Tinning: Mr. Smith, I think for the purpose

(Testimony of Thomas L. Phillips.)

of clarity, as there were two conversations, that the question should go to one and then the other.

Mr. Smith: That is perfectly proper.

Q. Directing your attention, Mr. Phillips, to the first meeting that you had with Mr. Boggs, as I understand you stated the date of it was approximately what—the 19th of August?

A. The 16th and 19th.

Q. Directing your attention to the 16th of August, 1935, did you see Mr. Boggs on that day?

A. Yes.

Q. Who was present?

A. Mr. Tibbitts and Mr. Barkley.

Q. You and Mr. Boggs, the four of you?

A. Yes.

Q. That was held at Mr. Boggs' office?

A. That is right.

Q. What was the sum and substance of what was said and discussed between you and Mr. Boggs upon that occasion?

Mr. Wittschen: If your Honor please, for the purpose of the record I make the same objection heretofore made on all of the grounds.

The Court: The same ruling.

Mr. Wittschen: Exception.

A. Our discussion that day was in regard to the concrete lining section and the engineering that the contractor was called upon to do in setting lines and grades in the tunnels, that is, the surveying of the lines and grades. We recommended — I say we, Mr. Tibbitts and I recommend to Mr. Boggs that he

(Testimony of Thomas L. Phillips.)

strengthen the con- [1747] crete Section, that is Section A, by adding reinforcing steel and installing a strut at the point over the highway section and under the ventilating chamber, and also installing an invert.

Q. You mean by an invert an additional section at the bottom, underneath?

A. Yes, an additional section across the tunnel at the bottom of the concrete.

Q. Will you proceed and state what was said by Mr. Boggs in respect to this recommendation?

Mr. Wittschen To which we make the same objection, on all of the grounds heretofore stated, and the further ground that this was a gratuitous volunteer offer upon the part of the contractor that we had not called for, and upon which we are not bound, and it was not in the contract; nobody asked him to come in and tell him how much he wanted.

The Court: For the purpose of the record indicate the purpose of this testimony.

Mr. Smith: The purpose of the testimony is to show that the contractor had met problems in the construction which were causing the contractor concern, and he employed outstanding engineers to come in and consult as to the best handling of the problem, and they took the question up with the District and its representative, Mr. Boggs, and as a result of their taking up the matter with Mr. Boggs he immediately began to strengthen and reinforce the concrete lining and put in additional steel.

(Testimony of Thomas L. Phillips.)

The Court: There is no one complaining here about that, is there?

Mr. Smith: Yes, your Honor, it greatly increased the cost, increased the cost and the time.

The Court: All of which is provided for in the contract and specifications? [1748]

Mr. Smith: No, it is not, your Honor, I beg your pardon. The contract does not provide that we are not entitled to an extension of time for doing it. We have a right to show that that took more time, to do that thing, and in addition it will show that the contractor advised the district that the ground condition was of such a character that it was highly dangerous to work in, and that nevertheless the District took the attitude that they would do nothing about it, and let the contractor go ahead and bear the full responsibility for any trouble that might arise.

The Court: The purpose of this offer, you say, is to show the time. Is it limited to that?

Mr. Smith: Yes, to show that it added to the difficulty of the job, so that the contractor could not physically complete the job in the time fixed, and they arbitrarily denied an extension of time.

The Court: I am willing to give you a record on a reason for the time, but we have built this tunnel now three times, and if we build it three times more——

Mr. Smith: I am not trying to prolong this case, at all.

(Testimony of Thomas L. Phillips.)

The Court: The ultimate fact is, though, and it is apparent that we are going along very slowly here; I have allowed you a great deal of latitude here, and I did so so that both sides would have an equal opportunity. The time has come now to check that. There are other cases just as important to try as this case. I have been generous in giving you time. With that admonition we will proceed again, with the hope that we will get to the merits. I am willing to give you a record on any theory that you have in relation to time, but if we are going into the matter of the construction of steel and the details thereof we are just wasting time.

Mr. Smith: There is no desire to go into detail, at all. [1749] It is purely preliminary, and the testimony will not take more than five minutes.

Mr. Wittschen: We will take an exception to the ruling. [1750]

The Court: I told you before the only thing you would have to comfort you is the record; so both sides are entitled to that. Proceed.

Mr. Smith: Q. What was Mr. Boggs' answer to your recommendations?

Mr. Wittschen: Same objection.

The Court: Same ruling.

Mr. Wittschen: Exception.

The Witness: A. Mr. Boggs stated he was satisfied that the concrete lining the section "A" as designed was adequate to hold the ground loads, however, he would call in his consultants and lay the matter before them.

(Testimony of Thomas L. Phillips.)

Mr. Smith: Q. That was the first conversation, —the sum and substance of the first conversation; is that right? A. That is correct.

Q. You said you had a second conversation in that same month, or second meeting, with Mr. Boggs?

A. Yes. We had the second meeting,—that was August 19th.

Q. What was the sum and substance of what was said at that meeting?

Mr. Wittschen: Same objection on all grounds previously stated.

The Court: The same ruling.

Mr. Wittschen: Exception.

The Witness: A. Mr. Tibbetts and I made further investigation of the tunnel; and felt it our duty to call the attention of the Contractor as well as the District Engineer to the serious condition of the tunnel; that is, the serious condition that might happen to the tunnel.

Mr. Wittschen: Pardon me. I might state the question was [1751] —I believe the witness answered the question. He was asked what he stated to Mr. Boggs.

The Court: The "serious condition" is a conclusion.

Q. Just repeat the conversation; what you said.

Mr. Smith: Q. What was the sum and substance of what you said to Mr. Boggs?

Mr. Wittschen: Same objection.

(Testimony of Thomas L. Phillips.)

The Court: Same ruling.

Mr. Wittschen: Exception.

The Witness: A. We told Mr. Boggs that the tunnel was taking very heavy ground loads, and the matter of hewing the timber sets out to a point where it would seriously weaken them, or the matter of entirely removing the sets, digging up the lagging and setting the timbers back to clear the designed concrete lining, was a very hazardous operation; and we urged him to permit the intrusion of some of the timbers into the outer line of the concrete section and to compensate for strength, as we had previously talked to him on the 16th, to add reinforcing steel and install a strut over the highway section at the foot of the concrete lining.

The Court: Q. Did you know how long those timbers were there,—the supports? A. Yes.

Q. How long were they there?

A. Some of those timber supports were there as long as 6 or 7 months before they were concreted.

Q. They indicated, at that time, that they had a heavy load and were intruding?

A. Yes. Some had a very heavy load.

The Court: Proceed.

Mr. Smith: Q. Have you concluded with what you said or recommended? A. Yes.

Q. In sum and substance, what, if anything, did Mr. Boggs say?

Mr. Wittschen: Same objection.

The Court: Same ruling. [1752]

(Testimony of Thomas L. Phillips.)

Mr. Wittschen: Exception.

The Witness: A. Mr. Boggs said that he did not think he could possibly permit the intrusion of any of the timbers; however, he would take the whole matter under advisement.

Mr. Smith: Q. How long did these two interviews last, approximately, in length of time?

A. I think the one on the 16th lasted from about 9:30 or 10 o'clock until some time after 12.

Q. That is, in the morning?

A. In the morning; and the one on the 19th was in the late afternoon,—probably a two or two and a half hour discussion.

Q. On August 28th, you testified you were in the tunnels on the morning of that date?

A. Yes; I was there all forenoon.

Q. Did you notice the timbering situation in the north tunnel, particularly? Did you notice it?

A. Yes, I did.

Q. What was your observation, if any, as to the condition of the timbers that morning at the point where the cave-in occurred later in the day?

A. Well, I noticed a timbering, or a retimbering gang, I should say, working at that particular location. I don't recall the number of men in the gang; but there were probably about 8 or 10. They were working from a Jumbo, and were taking out the timber sets,—taking out the lagging behind the sets, and excavating sufficiently into the natural ground to permit the installation of the new sets so that it

(Testimony of Thomas L. Phillips.)

would clear the designed neat lines of the concrete lining.

Q. What did you observe as to the method being pursued by the Contractor and the workmen?

A. The work they were carrying on was along the general lines that are used by tunnel retimbering gangs.

Q. You observed or saw nothing unusual or out of the way in what [1753] they were doing?

A. No. Because of my acquaintance with such a vast amount of work of that kind on the Western Pacific, I was naturally looking to see if they had some new method, and they were following approximately the same method that we have used for several years.

Q. You went there, also, I believe you said, on the same day after the cave-in?

A. Yes. I heard about the cave-in, as I recall, about 7 o'clock, and I went directly over there.

Q. What did you observe, if anything, then,—just in a few words, generally?

A. I observed the tunnel was full of muck for a distance of 100 feet or more,—the floor of the tunnel; and it was apparent there was an opening 30 or 40 feet wide at the roof.

Q. Were you in the tunnel after August 28th, and particularly during the few weeks immediately following that date when the operations were suspended in the north tunnel as has been testified to in this case? A. Yes.

(Testimony of Thomas L. Phillips.)

Q. Was some of the concrete work installed in the tunnel during that period on a similar suggestion for modification of the arch to that which you had made to Mr. Boggs in August? A. Yes.

Mr. Wittschen: Just a moment. May the answer go out pending an objection?

The Court: I may go out.

Mr. Wittschen: Objected to as immaterial and calling for an opinion and conclusion of the witness, and on the further ground that the suggestions of the witness were not not part of the contract.

Mr. Smith: I asked him what he saw, and he has already said he saw the same thing being done which was recommended to Mr. Boggs. That is all I wanted to show by that answer.

The Court: I will sustain the objection. [1754]

Mr. Smith: Q. Mr. Phillips, how many times were you in there later,—in the tunnels,—during the month of February, 1936, if you recall?

A. I do not recall just how many times. I recall, however, that I was in there on February 19th.

Q. You have examined such records as you keep to ascertain that fact, have you? A. Yes.

Q. You have heard of this cave-in, testified to here, on the 22nd of February? A. Yes.

Q. That was approximately three or four days before the cave-in, then—three days? A. Yes.

Q. Did you observe the conditions at the point where the cave-in occurred on the 22nd of February?

A. Yes. I recall distinctly of going into all of the heading drifts in the north tunnel on the eve-

(Testimony of Thomas L. Phillips.)

ning of the 19th, and also going up on the catwalk and into the top heading.

Q. What did you observe of the work being done upon that occasion?

A. Well, the work looked about the same as it had theretofore. There was spotty ground, and the timber was taking weight in places in the tunnels. I observed various places where it was taking weight. However, I did not see anything that was alarming at all in that immediate vicinity, not any more than in the usual driving of a tunnel.

Q. Did you go into the tunnel later, after the cave-in, that month?

A. Yes. I was there about 4 or 4:30, right after the cave-in; I think about two hours or so after the cave-in occurred.

Q. You mean in the morning of February 22nd?

A. Yes, in the morning.

Q. What did you observe then, just briefly?

A. Well, I observed that several of the timber sets had fallen down, and a great cave [1755] had formed on the right-hand side of the north tunnel, approximately at Station 126 plus 75. This cave, or cavern, was still visible; and the material was falling in chunks intermittently down into the lower section of the tunnel.

Q. Was the material of a different character than the ground more generally met with going through?

A. Yes; the material was white and dark mate-

(Testimony of Thomas L. Phillips.)

rial mixed in places and some of the pieces that came out were almost all white; seemed to be kind of a brittle material; it was dry; had no apparent strength; it just seemed like it was in an area on the right-hand side of the tunnel and it was very hard to tell how far it extended.

Q. Had you seen the excavation being made at that point where this cave-in occurred shortly before it occurred, or right near it?

A. Well, right near it; I wouldn't say I saw it exactly at that spot.

Q. How long before the actual cave-in occurred, if you know, was the excavation made there; a few days, or a long time?

A. Oh, yes, it was made several days before that; in fact, that section of the tunnel where the cave-in occurred was fully timbered when I was in there on the 19th; I am satisfied of that; I checked that up, however, from the records, to find out that.

Q. How close was the concrete lining of the tunnel to the caved-in portion?

A. Well, it was more than 100 feet; I could not say exactly how far that was, but I would say probably 150 feet back.

Q. Did you see the timbers that had fallen down, after the cave-in, that came out? A. Yes.

Q. Had they apparently been defective, or was it any fault of the timbers, as you noticed them?

A. No; there was not any broken timbers that I saw.

(Testimony of Thomas L. Phillips.)

Q. When did you next go in the tunnels after the cave-in, after the [1756] first visit you made shortly afterwards; did you stay there or around there?

A. I stayed around there until about noon, as I remember it; and I think, if I recall correctly, I was there the next day.

Q. Was the work of the Contractor delayed as a result of the August cave-in? A. Yes, it was.

Q. About how long?

A. At least, 60 days, and probably considerably more.

Q. Was the work of the Contractor unavoidably delayed as a result of the February cave-ins?

Mr. Wittschen: That calls for his conclusion,—the word "unavoidably." That is for the Court to determine. I object to that particular question as asking for a conclusion that is not a matter of expert testimony to be construed by the contract. I have no objection to him stating how long in his opinion there was a delay.

The Court: "Unavoidably" will go out.

Mr. Smith: Q. Was the Contractor delayed as a result of the February cave-ins? A. Yes.

Q. What delays was he put to and for how long?

A. He was delayed because of the cave-in. It was necessary to squareset the tunnel.

Mr. Wittschen: The question was: "How long?"

Mr. Tinning: This is February; there was no squaresetting——

Mr. Smith: I will withdraw the question.

(Testimony of Thomas L. Phillips.)

Q. For how long was it delayed, Mr. Phillips, as a result of the February cave-ins, so far as you could observe?

A. My opinion is he was delayed at least 60 days.

Q. Going back to the August cave-in: what reasons delayed the work of the Contractor as a result of the cave-in?

A. The necessity for opening up the cave-in and concreting that section and [1757] allowing the concrete to thoroughly set before the forms and the squaresets could be removed so that the normal working conditions of the tunnel could be resumed.

Q. You saw what was done after the cave-in during the month of September and thereafter until the work of excavation was resumed, did you?

A. Yes.

Q. In stating the Contractor was delayed 60 days and possibly more, did you include the delay incidental to what was done afterwards before excavation was resumed further on in the tunnels; or do you attribute it directly to the work done at the point of the cave-in?

A. No; I attribute the estimate I have given you as the time delayed at each of the separate cave-ins, resulting in a considerable amount of anxiety from the Industrial Accident Commission.

Mr. Wittschen: I think the witness is going past the question. The anxiety of the Industrial Accident Commission will have to speak for itself in its letters and orders and not just a statement of that character. I ask it go out.

(Testimony of Thomas L. Phillips.)

Mr. Smith: It is not directly responsive; it may go out.

Q. Mr. Phillips, were there other delays indirectly resulting to the work, in addition or separate from the delays you mentioned as a result of the cave-ins? A. Yes.

Q. What were those delays and how long?

A. The squaresettings of the tunnels through the heavy ground section and the necessity for using wooden forms in concreting those sections.

Q. For how long did that delay the work, in your opinion?

A. That was somewhere between 30 and 60 days' delay.

Q. That is, in addition to the other delays you mentioned, which you attribute directly to the spot of the cave-in? A. Yes.

Q. Have you read the geology report, and examined the plans and examined the contract and the specifications, in this case? [1758]

A. Yes, sir.

Q. When did you do that?

A. I first saw the specifications and the geologist's report on August 5th. I made a trip——

Mr. Wittschen: Q. 1935?

A. 1935—I made a trip to Elko, Nevada, and, going and coming on the train, I went over the specifications and the geology report.

Mr. Smith: Q. You have kept yourself familiar with them since then? A. Yes.

(Testimony of Thomas L. Phillips.)

Q. Are you familiar with the clauses in the specifications concerning timbering and other clauses regarding the construction of the tunnel portion of the work? A. Yes.

Q. You are familiar with the time fixed in the contract for the completion of the work by the terms of the contract? A. Yes.

Q. Based on your knowledge of the facts, as you have testified, and on the documents themselves which you testified you were familiar with, what, in your opinion, was the progress which the Contractor could expect to make in tunnel excavation in the construction of these tunnels?

Mr. Wittschen: Objected to as immaterial and calling for the opinion and conclusion of the witness; and I particularly call the Court's attention that the rate of progress that he could make is not a matter of expert testimony. We further object to the injection of the geological report into the question, since it is no part of the contract. The Contractor was not required to bid on that. He took a contract to complete within 720 days. The evidence shows he was going to do it in 18 months, according to the first schedule. The opinion of the witness as to the progress that he should make is entirely beside the contract and immaterial.

Mr. Smith: The objection is not good, under the theory on which the plaintiff is presenting its case here, your Honor, and we [1759] would like to argue the objection to the Court, if your Honor desires

(Testimony of Thomas L. Phillips.)

argument upon it, because it is a matter involving expert opinion, in our judgment.

The Court: I am about to sustain the objection. Read the question.

(Pending question read.)

The Court: The Court is prepared to sustain an objection to that question.

Mr. Smith: Are you willing to permit us to discuss the matter with you before you rule upon it?

The Court: Certainly. I am only giving it to you so you can prepare yourself.

Mr. Smith: If it please the Court, this goes back to a position which the plaintiff takes in this case——

The Court: I have in mind the form of this question. Just let the reporter read the question again.

(Pending question reread.)

Mr. Smith: Well, there was no objection made as to the form by counsel.

The Court: Well, I had the question read for that reason.

Mr. Smith: It is a matter, your Honor, of asking for the opinion of this man who is certainly qualified as an expert on tunnels.

The Court: Q. Can you answer that question?

A. Yes, your Honor, I feel confident I can.

The Court: I am going to allow you to answer. I want to finish this.

Mr. Wittschen: Note an exception.

The Court: What is the answer? [1760]

(Testimony of Thomas L. Phillips.)

The Witness: A. About 10 feet per day in each tunnel.

The Court: "About 10 feet per day in each tunnel." Well, we got past that. Proceed.

Mr. Smith: Q. What are your reasons for making that statement?

Mr. Wittschen: Object to that as incompetent and immaterial and asking the witness to pass an opinion upon and construe a document which is for the Court to construe and not the subject of expert testimony, and also tying the geological report in, which is not part of the contract.

The Court: Read the question.

(Pending question read.)

The Court: Sustained. I have listened to reasons here for the last four or five weeks.

Mr. Smith: You have not heard the reasons given by this witness, your Honor.

The Court: Can he add anything to what has already been said?

Mr. Smith: I think your Honor is familiar with the code section which says an expert is entitled to give the reasons why he has expressed an opinion.

The Court: Oh, I am familiar with that.

Mr. Smith: And I think he will, your Honor.

The Court: In doing that, would it not be a repetition of what we have heard before?

Mr. Smith: No; I don't think anybody has stated what the anticipated progress would be, except Mr. Larson, who estimated the tunnels.

(Testimony of Thomas L. Phillips.)

The Court: I will let him answer.

Mr. Wittschen: Note an exception. [1761]

The Witness: A. That will take a rather lengthy explanation.

The Court: I anticipated that. Proceed.

A. In order to first make an estimate of the amount of progress that might be made in a tunnel, it must be first determined the kind of material or the character of the ground which may be encountered. After that is made, then, of course, comes the matter of organization, the matter of equipment and various other things.

The Court: We will all concede this tunnel could be dug more efficiently in the light of the experiences that we have all had since this work.

A. No; I don't think that is true, your Honor.

Q. You do not think that is true?

A. I think——

Q. I would like to ask you a question, myself; it may be helpful to me.

Now, after these cave-ins, they retimbered and they cemented the tunnels? A. Yes.

Q. At that very point and at that very time?

A. Yes.

Q. Why wasn't it done four months before?

A. It is customary to do all of the excavating through a tunnel before the concreting work is started.

Q. Yes. I am aware of that; but we had to have a disaster, and immediately when that occurred then

(Testimony of Thomas L. Phillips.)

we retimbered and then we see the necessity for finishing that off at that point.

A. Well, of course, that material had to be removed and so much additional timber put in as was necessary to concrete at that point immediately.

The Court: Yes. Proceed. [1762]

A. The most important thing in determining anticipated progress of the tunnel is to first come to a conclusion in your own mind as to the kind of material you expect to encounter and the rate of progress you can probably make in such material. Therefore, in this particular case, as I see it, the ground was represented to be self-supporting; this is borne out in the geologist's report, and in my opinion borne out in the specifications, and the contractor had a right to believe that he would encounter such ground; in other words, he had a representation of something that he did not find, and that is not a customary thing.

The Court: Do you think the geologist's report deceived him? A. Yes, it did deceive him.

Mr. Wittschen: I move to strike out the answer of the witness, particularly where he states the contractor was deceived by the geologist's report. The contract and the specifications provide that that is not to be considered in any way as a representation or an excuse for avoiding the contract or asking for additional compensation.

The Court: I am going to allow that to stand.

Mr. Wittschen: Exception.

(Testimony of Thomas L. Phillips.)

Mr. Smith: Q. What portion of the specifications do you have in mind?

Mr. Wittschen: Objected to as asking the witness to construe the specifications.

Mr. Smith: I am asking him to point out the part in the specifications.

Mr. Wittschen: It is invading the province of the court.

Mr. Smith: I am asking him to point out what portion of the specifications he had in mind. That is not invading the province of the court, at all.

[1763]

Mr. Wittschen: Let his Honor rule on that.

The Court: How is that subject to expert testimony?

Mr. Smith: I am just asking what portion of the specifications he had in mind.

The Court: He may answer.

Mr. Wittschen: Exception.

A. The one in particular in regard to the timber.

Mr. Smith: Q. Did those clauses regarding the timbering cause you to form the opinion that the ground would be self-supporting?

A. Yes, they helped to support that conclusion.

Q. That, in turn, was the basis of your conclusion as to the time the contractor would make?

A. Yes.

Q. Have you made an examination of the records of the company as to the progress that was made in the excavation on an average per day as against

(Testimony of Thomas L. Phillips.)

the 10 feet that you said the contractor should have made? A. Yes.

Q. How much was made, approximately?

Mr. Wittschen: Objected to as immaterial; the contract provides that the contractor shall do all of the work, and what he made has no bearing on this case.

The Court: I will allow him to answer with the hope that we will get through.

Mr. Wittschen: Exception.

A. About 4 to 5 feet.

Mr. Smith: Q. Your answer in that respect, does that include the time that the contractor was delayed? A. No.

Q. Was the 4 to 5 feet per day reduced by the delay? A. Particularly in the north tunnel.

Q. To what point was it reduced?

A. It was reduced to about 3 1/3 feet per day.

[1764]

Q. As I understand your testimony, then, the contractor would have made, would have had a right to make 10 feet per day and could only average 4 to 5 feet per day?

Mr. Wittschen: You repeat the answer in the question, and I object on the ground it has been asked and answered, and on the grounds previously stated.

Mr. Smith: I will withdraw the question.

Q. Was any delay suffered by the contractor as the result of the installation of reinforcing steel, in your opinion?

(Testimony of Thomas L. Phillips.)

Mr. Wittschen: Objected to as immaterial. The specifications provide that all the reinforcing steel that the District wanted might go in, and if they suggested their doing it they had no right to take advantage of the suggestion.

The Court: The objection will be sustained.

Mr. Smith: I would like, your Honor, to withhold your ruling until I suggest the purpose of the testimony.

The Court: I have listened to the purpose of the testimony heretofore. The Court has ruled.

Mr. Smith: Note an exception.

Mr. Alexander: We join in the exception.

The Court: Note an exception.

Mr. Smith: We offer to prove—I have a right to make an offer of proof, I assume, in connection with this?

The Court: Save your record.

Mr. Smith: We offer to prove by the question and the answer which the witness will give, the testimony which the witness will give in answer thereto, that the fact that the District greatly increased the amount of steel delayed the contractor; the testimony is not offered for the purpose of showing that the District did not have a right to increase the amount of reinforcing steel in the [1765] tunnel. The testimony will show that the District called for work done by the plaintiff, in approximately 10 per cent, of the work, installation of 300 per cent, as much steel, and in 50 per cent. of the work done by

(Testimony of Thomas L. Phillips.)

the contractor 200 per cent, as much steel, twice as much in 50 per cent, of the work and three times in 10 per cent. of the work. So as to make the illustration particularly appropriate, suppose they had ordered ten times as much steel, there could be no question that the contractor would have had to install it, we are not questioning that, nor are we offering to submit this testimony for that purpose, but we offer to prove that the contractor was necessarily delayed in the work as a result of putting in the steel. If there had been ten times as much steel installed that would certainly show the contractor suffered delay.

The Court: How much steel did they put in?

Mr. Smith: In 50 per cent, they put in twice as much, and in 10 per cent. they put in over three times as much.

The Court: Let us get the quantity. How much steel did they put in?

Mr. Tinning: That was testified to yesterday.

The Court: How much?

Mr. Tinning: Mr. Hindmarsh testified that in 50 per cent. of the tunnel extra steel was put in.

The Court: Of the entire tunnel?

Mr. Tinning: Of the entire tunnel, that is what he said.

The Court: If you have got a record on that what other record do you want?

Mr. Smith: We want to show how it would delay the work in the opinion of Mr. Phillips, who is an expert.

(Testimony of Thomas L. Phillips.)

Mr. Wittschen: The contractor agreed to put in whatever steel the District wanted. It must be assumed that was figured in the [1766] contractor's bid.

Mr. Smith: How could the contractor figure on the steel when the contract only called for one curtain, and they put in two curtains? They had the right to put in two curtains, but as we shall urge they must give us time. You cannot build a four-story house in the same time as a two-story house.

Mr. Wittschen: The delay was caused by the excavation. The steel went in and the concrete was within 125 feet of the excavation, so that only in 125 feet of tunnel would there be any delay. On top of that they subcontracted it.

Mr. Smith: That is not true. The work was delayed in fact and the witness will so testify.

The Court: I am concerned about one thing, no matter what this Court may do in this case, should there be an appeal, as I indicated at the outset, I want to give both sides a record, I want to be liberal, and I have got to keep that in mind. What is the question?

(Question read by the reporter.)

He may answer.

Mr. Wittschen: Exception.

Mr. Smith: You may answer the question. Did the installation of the additional steel delay the work. A. Yes.

Q. How much was the delay, in your opinion, and how was it delayed by that?

(Testimony of Thomas L. Phillips.)

A. It is pretty hard to tell how much it was delayed, but it is evident it was delayed, because it took a great deal longer to install the additional steel, and it took longer to place the concrete in the forms after the double curtain of steel was installed.

Q. How much timbering, in your opinion, was the contractor entitled to estimate was necessary to construct these tunnels under the plans [1767] and specifications, in ground of the character represented?

Mr. Wittschen: The same objection that was made on all of the grounds previously stated to a similar question on the excavation.

The Court: In the ground represented?

Mr. Smith: In the ground as represented.

The Court: Who represented the ground?

Mr. Smith: The District represented the ground.

The Court: I do not follow that.

Mr. Smith: Well, your Honor, the District gives notice to bidders inviting them to make a bid on a job. The bidder's attention is directed to the contract and specifications.

The Court: Yes.

Mr. Smith: To the proposed form of contract.

The Court: Yes.

Mr. Smith: And to the blueprints and drawings.

The Court: No doubt about that.

Mr. Smith: And to the geological report, which it states in the specifications is on file in the office of the District .

(Testimony of Thomas L. Phillips.)

The Court: Yes.

Mr. Smith: The contractor examines all of those matters, all of those documents, and forms an opinion as to what he is going to do in building these tunnels with that situation; he is invited also to make his own examination of the ground to the extent he could make it, which Mr. Larson did.

The Court: Wasn't he in the same position as the geologist who made the report?

Mr. Smith: Absolutely not, not at all.

The Court: Why?

Mr. Smith: I will tell you why, because the geologist's report is given to the owner, the District, and the District puts out that information for the purpose of guiding bidders as to the condition [1768] they will meet. That has been held in this Circuit.

The Court: I am clear on that.

Mr. Smith: And in the Passaic Valley Case it was held in the Second Circuit that even though the owners claimed that the contractor must not act upon it, that it does bind the owner; therefore, it becomes pertinent at this point and proper for Mr. Phillips to testify how much timber he would be justified in estimating he would use.

The Court: That is what I wanted cleared up. I may be in error. That is the reason I was inquiring. We have a geologist's report here that has been discussed from time to time. What would preclude the contractor from making a geological examination?

(Testimony of Thomas L. Phillips.)

Mr. Smith: 100 things, the first of which is the major obstacle; it would take months and longer to complete.

The Court: I can understand that.

Mr. Smith: And it would take long study, in addition to field work, which the contractor would not have time to do.

The Court: Is that all you have in mind?

Mr. Smith: That, I think, is sufficient.

The Court: I had that difficulty in mind.

Mr. Wittschen: Might I say the Passaic Case, nor the Sartoris Case that counsel says held the report as binding on the District, does not hold anything like that, and at the proper time I would like to argue it. I add to my objection that if it is a hypothetical question that it does not embody all of the things that should go into it. There is no representation as to any ground.

The Court: I will sustain the objection. Reframe the question.

Mr. Smith: Q. You stated, Mr. Phillips, that you have read the geological report.

A. Yes.

Q. And you are familiar with the conclusions therein stated? A. Yes.

Q. And you have read the specifications?

A. Yes.

Q. Examined the blueprints and plans?

A. Yes. [1769]

Q. And read the contract form?

(Testimony of Thomas L. Phillips.)

A. Yes, I have.

Q. And all of the pertinent documents that are mentioned in the contract? A. Yes.

Q. And you personally saw the tunnels during the time they were under construction, as you testified? A. Yes.

Q. You know the form of the bid that the contractor was required to make? A. Yes.

Q. Based on the information contained in the specifications and plans and the contract, and the geological report, how much timber was the contractor justified in estimating it would require to use in the construction of the tunnels?

Mr. Wittschen: Objected to as immaterial, and calling for the opinion and conclusion of the witness, asking the witness to construe documents that are not part of the contract, attempting to change the contract by parole, and invading the province of the court.

The Court: He may answer the question.

Mr. Wittschen: Exception.

A. Not more than one-fifth as much as was used.

Mr. Smith: Q. How much was used, do you know?

Mr. Wittschen: The same objection, on all of the grounds heretofore urged.

The Court: You may answer.

Mr. Wittschen: Exception.

A. I think there was in the neighborhood of seven million feet.

(Testimony of Thomas L. Phillips.)

Mr. Smith: Q. That was five times as much as should have been estimated, in your opinion?

A. Yes.

Q. You have estimated work in connection with the duties you have performed as an engineer, have you? A. Yes.

Q. What do you estimate in estimating for the construction of a tunnel, what elements do you consider?

Mr. Wittschen: Objected to as immaterial, and not aiding the [1770] Court in deciding any issue in this case. I have not tried to call your Honor's attention to any law, but if counsel is going to I am prepared to.

The Court: The objection will be sustained.

Mr. Smith: Q. Mr. Phillips, in duties which you have performed as an engineer have you exercised the powers of an engineer similar to those contained in the contract involved in this case?

Mr. Wittschen: Objected to as immaterial, and I have cases squarely in point that go to that very question. It is not a question of what was done by him in some other case, but what was done in this case, and that is for the Court.

Mr. Smith: That is what I am going to ask his opinion about.

Mr. Wittschen: I know you are, and that is why I am objecting on all of the grounds.

The Court: I am prepared to rule. The objection will be sustained.

(Testimony of Thomas L. Phillips.)

Mr. Smith: Would your Honor permit argument upon it?

The Court: No, I have ruled. You can ask him about something done in this case, not in other cases.

Mr. Smith: I was not going to ask him about other cases.

The Court: Your question did embody other cases. You asked him about other cases.

Mr. Smith: I will withdraw it and reframe the question.

Q. Have you had experience with the function of an engineer on a contract containing clauses conferring powers upon the engineer similar to those conferred in this case?

Mr. Wittschen: I object to that as entirely immaterial, and not binding upon this defendant in any way, and proving no issue.

The Court: What is the purpose of the offer?

Mr. Smith: It calls for merely a "Yes" or "No" answer as to [1771] whether he has had experience and is preliminary in laying a foundation for asking him what the practice is in connection with the facts of this case.

The Court: What facts?

Mr. Smith: The facts of this case concerning the right of the contractor to obtain an extension of time.

The Court: I will sustain the objection.

Mr. Smith: Note an exception.

Mr. Alexander: We join in the objection and exception.

(Testimony of Thomas L. Phillips.)

Mr. Smith: We offer to prove by the testimony of this witness that he has had experience in——

The Court: Now, wait just a minute. The Court has ruled; I want you to have a record, but I do not encourage the method of what you offer to prove. You have assigned your reasons, and the Court has ruled.

Mr. Smith: There has been nothing as to what the opinion would be. We offer to prove what the witness will testify to.

The Court: Proceed with your question.

Mr. Smith: With a statement of what he would testify to?

The Court: No, proceed along the line suggested. You ask the question and I will rule at the proper time.

Mr. Smith: Q. Mr. Phillips, have you exercised the powers of an engineer under contracts for construction work with clauses in them similar to those contained in the contract involved in this case?

Mr. Wittschen: Objected to as immaterial and calling for his conclusion as to whether or not the clauses are similar, and invading the province of the Court, and we are bound by what took place in this case and not in other cases.

The Court: The objection will be sustained.

Mr. Smith: Note an exception.

Mr. Alexander: We also join in the exception.

[1772]

Mr. Smith: Q. Mr. Phillips, have you read the clauses in this contract concerning the powers and

(Testimony of Thomas L. Phillips.)

duties conferred upon the engineer? A. Yes.

Q. You are familiar with them? A. Yes.

Q. Have you acted as an engineer under other contracts in a similar capacity to the engineer in this case?

Mr. Wittschen: Objected to on all of the grounds previously stated.

The Court: I want to give counsel a record. If he has some particular clause in the contract that he is relying on he can call attention to it.

Mr. Smith: I call the attention of the witness particularly to the language of Subdivision (e) of Section 6 of the General Provisions of the specifications found on page 5, regarding disputes, which reads as follows:—or is your Honor sufficiently familiar with it?

The Court: You may read it for the purpose of the record.

Mr. Smith: It has already been read into the record several times, unless your Honor wants it to be re-read.

Mr. Wittschen: Might I ask a question?

Mr. Smith: Yes.

Mr. Wittschen: Do you want to ask this witness if in his opinion as an expert he could settle the dispute in some other way?

Mr. Smith: Yes.

Mr. Wittschen: That is what I thought.

Mr. Smith: Not in that form.

Mr. Wittschen: I though that was the intention.

(Testimony of Thomas L. Phillips.)

Mr. Smith: I did not want to ask him the question in the form that you were putting it, no, of course not.

Mr. Wittschen: Go ahead and I will object.

Mr. Smith:

> "Disputes. To prevent disputes and litigation [1773] the District Engineer shall in all cases determine the amount, quality and acceptability of the work and materials which are to be paid for under these specifications. He shall determine all questions in relation to said work and materials and performance thereof, and all questions which may arise relative to the fulfillment or interpretation of these specifications on the part of the Contractor. His estimate and decision shall be final and conclusive, and in case any question shall arise between the Contractor and the District pertaining to the contract, the District Engineer's estimate and decision shall be a condition precedent to the right of the Contractor to receive any moneys under the contract."

Are you familiar with that clause, Mr. Phillips?

A. Yes, I am.

Q. Are you familiar with the clause which reads, in the same section, Subdivision (h):

> "Interpretation of Plans and Specifications. Should it appear that the work to be done or any matters relative thereto are not sufficiently detailed or explained in the plans and specifica-

(Testimony of Thomas L. Phillips.)

tions, the Contractor shall apply to the District Engineer in writing for such further details and explanations as may be necessary, and he shall conform to the same as part of the contract insofar as they may be consistent with the original specifications and plans. In the event of any doubt or question regarding the true meaning of the specifications, the decision of the District Engineer shall be final. In the event of any discrepancy between any drawing and figures written thereon, figures shall be taken as correct."

Are you familiar with that? A. Yes.

Q. There is one more, subdivision (c) of Section 4, subject "Time", found on page 3 of the specifications, reading as follows:

"Extension of time. The time during which the Contractor is delayed in said work by Acts of God, or by stormy or inclement weather, or by any reason which, in the judgment of the District Engineer, [1774] unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the Contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof."

Are you familiar with that? A. Yes.

(Testimony of Thomas L. Phillips.)

Q. Now, basing your statement on those clauses which I have read, have you exercised the functions of an engineer under similar clauses?

Mr. Wittschen: I make the same objection, on all of the grounds previously stated.

The Court: I am going to allow it.

Mr. Wittschen: Exception.

A. Yes, I have.

Mr. Smith: Q. What, in your opinion, was the duty of the engineer here in connection with the granting of an extension of time to the plaintiff?

Mr. Wittschen: Objected to on the ground it is immaterial, irrelevant, and invading the province of the Court, and calling for the opinion and conclusion of the witness.

The Court: This may assist the Court. On some of these matters this witness may assist me. I have some definite thought about it, but he may change my view. I wil allow him to answer.

Mr. Wittschen: Can I finish the objection?

The Court: Yes.

Mr. Wittschen: t invades the province of the Court, and asks the witness to construe the contract, and to make a different contract between the parties. I do not care to argue it, but there is a line of authorities that hold that that is improper.

The Court: He may answer.

Mr. Wittschen: Exception. [1775]

A. In my opinion it was the duty of the District Engineer to grant an extension of time for the

(Testimony of Thomas L. Phillips.)

reason that conditions were not found as they were expected to be found, and certainly over a period of two years there are a few days of inclement weather and other things that may be credited to the time of the contractor.

Mr. Smith: Q. Was the contractor unavoidably delayed, in your opinion?

Mr. Wittschen: I renew the objection on all of the grounds previously stated to the last question.

The Court: The Court will sustain the objection.

Mr. Smith: Q. In connection with the delays in connection with your handling of similar functions under other contracts what was the practice when the contractor asked for an extension of time?

Mr. Wittschen: Objected to as entirely immaterial.

The Court: The objection will be sustained.

Mr. Smith: Note an exception.

Mr. Alexander: Also an exception.

Mr. Smith: I offer to prove by this witness that in the exercise of similar functions which he has testified he does and has done that it is customary for the engineer to call in the contractor and to review the conditions on the ground with the contractor, consider the contractor's reasons, discuss the subject fully with him, and make a recommendation based on careful examination of all of the evidence concerning the subject, which was not done in this case, and the evidence shows it was not done.

(Testimony of Thomas L. Phillips.)

The Court: Proceed. The Court has ruled. The objection will be sustained.

Mr. Smith: Exception.

Mr. Alexander: Exception.

Mr. Smith: Q. What is the definition of overbreak as that term is [1776] used in a contract for excavation of a tunnel, Mr. Phillips?

Mr. Wittschen: Objected to as immaterial, calling for the opinion and conclusion of the witness upon a matter which is not ambiguous, and stated in the agreement.

Mr. Smith: It is purely a preliminary question,

The Court: You may answer.

Mr. Wittschen: Exception.

A. Overbreak is the amount of material that is removed from outside of the lines of necessary excavation.

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.)

[1777]

Afternoon Session

THOMAS L. PHILLIPS,

recalled.

Direct Examination (continued)

Mr. Smith: Q. During the morning, Mr. Phillips, the Court asked you a question about why the

(Testimony of Thomas L. Phillips.)

concrete had not been kept no closer in connection with the cave-ins. Did you have something you wanted to add to your answer to the Court's question?

A. Yes. I would like to add that it would not have mattered when the concreting was done before the cave-in of August 28, 1935, because the timbers would have to have been moved back, anyway, and, from good authority, I have been informed that the settling of that timber into the concrete area occurred directly after it was placed.

The Court: Q. To be frank with you, the thing I had in mind was the method and manner of proceeding with the work. The methods employed here, I take it, were the most economical methods, under the conditions; is that true?

A. Yes, I believe it was, probably.

Q. If other methods had been employed, it follows that it would have been more costly than the methods here used?

A. No; not that it would have been only more costly, but would have retarded the operation of the work. Further, your Honor, the second cave-in occurred at a point about 35 or 40 feet back of the face and right directly over where the shovel and excavated material was being worked. It could not have been concreted at that point.

The Court: Proceed.

Mr. Smith: Q. Under the contract and the specifications here, was the Contractor justified in driving the tunnels from the west end only?

(Testimony of Thomas L. Phillips.)

Mr. Wittschen: Just a moment; object to that as immaterial and calling for a conclusion and opinion of the witness. It proves [1778] no issue.

Mr. Smith: The testimony is offered for the purpose of showing, your Honor, the Contractor was justified in estimating and figuring and planning that the contract could be performed and performed well within the time limit and properly under the representations contained in the specifications by driving from the west end only.

Mr. Wittschen: Could I add to my objection: it is argumentative? It is certainly apparent he could have driven from either end if he wanted to. There is nothing here to inhibit him in that; he was not prevented; and later on, he did drive from the east end.

Mr. Smith: The testimony will show, your Honor, that if the contract was submitted to any person skilled in the art of building tunnels he would have estimated to do the work in the manner in which the plaintiff in this case estimated to do it, namely, by driving from the west end only, because of the conditions that were held out and represented. We are entitled to have the opinion of an expert that that was the proper way to estimate these tunnels. That is the purpose.

The Court: Was it because it was the most economical way?

Mr. Smith: No. Because it was the intelligent way to do it.

(Testimony of Thomas L. Phillips.)

The Court: What would you base that intelligence on?

Mr. Smith: That is what the testimony will show: if any tunnel builder would have figured to do it——

Mr. Wittschen: There is nothing physically impossible about driving from either end.

The Court: It seems to me the answer to that is they were at liberty to construct the tunnels from either or both ends.

Mr. Smith: Your Honor, the specifications provided for muck [1779] disposal at the west end. Your Honor is familiar with that testimony. The facts are that the tunnels had a grade rise of four per cent commencing at the west end and going to the east end. The facts are that driving uphill from the downgrade side is the way to do it for getting proper drainage, particularly where the muck to be taken out of the tunnels is to be used in the embankments which are located at the end where the muck will come out,—the downgrade end. We want to show, in the opinion of this witness, the Contractor was justified in concluding that that was the intelligent way to tackle the job from the information furnished.

The Court: I don't know how the Court is going to measure that intelligence.

Mr. Smith: Well, the opinion of an expert is proper testimony upon which your Honor could base his conclusion.

(Testimony of Thomas L. Phillips.)

The Court: What is the question, Mr. Reporter?

(Pending question read by the reporter.)

Mr. Wittschen: It is not a question of justification. He could have done it that way; he could have done it any way he desired; and he did do part of it at the east end.

The Court: He attaches to that question "under the plans and specifications."

Mr. Wittschen: Well, he was not required to drive it——

The Court: I understand it fully. I will allow him to answer the question.

Mr. Wittschen: Exception.

The Witness: A. According to the location of the——

Mr. Smith: Q. Answer the question "Yes" or "No," and then give your reasons.

(Pending question reread by the reporter.) [1780]

The Witness: A. Yes. According to the location of the center line and the established grade, there was no room for the disposal of any of the material at the east end of the tunnels, because the grade and the center line connected up with the existing highway. The disposal area provided for material was all at the westerly end of the tunnel. The drilling of a tunnel from the lower end, or downgrade end, is a customary thing to do when there appears to be a sufficient amount of time to do the work in that manner.

The progress schedule, as filed by the Contractor in February, 1935, showed that this tunnel would

(Testimony of Thomas L. Phillips.)

be all driven from the west end; and this progress schedule,—there was not to my knowledge or from my inquiries any objection made by the District——

Mr. Wittschen: I ask that go out as not an expert's opinion, and argumentative.

The Court: It may go out.

The Witness: A. If the Contractor had chosen to drive the tunnel from both ends, it would have duplicated the amount of machinery and the equipment; and the topography of the locality was such that there was very little room for the establishment of such machinery and equipment at the easterly end. There was no space for disposing of the material; and, had the Contractor excavated a considerable amount of tunnel from the easterly end, to dispose of that large amount of material it might well have been that there would not have been enough suitable material from the westerly end to make the roadway embankments. Therefore, he would have had to have found enough material to make up the difference. If the material in the tunnel had been as represented, there is not any question in my mind but what the progress,—sufficient progress could have been made to have completed the tunnel from the west end within [1781] the time allowed in the contract.

Mr. Wittschen: I ask that the part beginning "if the material had been represented" go out.

The Court: It may go out.

(Testimony of Thomas L. Phillips.)

Mr. Smith: It is entitled to remain in, I think, as one of the reasons; he stated he read the documents.

The Court: The language "as represented" may go out.

Mr. Smith: The words "as represented"?

The Court: Yes.

Mr. Smith: Q. Does the effect of water have any bearing in your experience?

A. Yes; water has a great deal of bearing. If water had been encountered, as it usually is in tunnels,—it is not a constant flow; it fluctuates,—and it may well have been that more water would have been encountered in places than the pump installation would have taken care of. Therefore, there is a very great likelihood of flooding the tunnel, which would not only have been a delay to the Contractor but might have caused serious injury to the structure through which the tunnel passes.

Q. You are referring to water at the east end?

A. If the driving is done from the upgrade end.

Q. If the driving is done from the upgrade end. I think we were asking you a question about overbreak just at the beginning of the noon recess; and you had defined overbreak. In a tunnel of this size, what was the necessary amount of excavation that you observed had to be done under the conditions that were encountered and that you saw when you were in the tunnels from August of 1935 to June, 1936?

(Testimony of Thomas L. Phillips.)

A. The necessary excavation would extend to a line 3 inches, or approximately 3 inches, back of the lagging.

Q. How much would that be outside of the line of the designed concrete section?

A. 1 foot and 9 inches. [1782]

Q. Have you made a computation of what the yardage is in the neat section and in that extended section? A. Yes, sir.

Q. In approximate figures. Did you also compute the actual excavation that was made by the Contractor? A. Yes.

Q. What percentage of excavation beyond the necessary excavation was made by the Contractor, compared with the total excavation?

Mr. Wittschen: Objected to as immaterial. The Contractor had control of his own work, and presumably he excavated as far as he had to in order to set the timbers.

Mr. Smith: The testimony, of course, your Honor, is directed to showing by the amount of work the Contractor had to do in order to construct the tunnel, in order to show what was necessary for the Contractor to do, and the time that it did take them to do it. The design contained in the plans and specifications submitted by the District called for the installation of a neat section of concrete lining, with no design shown for the installation of any timbers outside of that line. In addition to putting a concrete lining in, the Contractor had to

(Testimony of Thomas L. Phillips.)

put, throughout the tunnel, permanent timbering, which took, as the witness said, a minimum space of 21 inches in width outside of the circumference or outside line of the designed concrete section. In addition to that, 3 inches is allowed behind the lagging, according to the answer the witness just gave; and it makes a total of about—well, that is in the 21 inches. In addition to that, there would be what is called "overbreak," as he defined it; and we want to show the percentage of overbreak in this case was normal and in accordance with good tunnel practice, and that is all.

Mr. Wittschen: That is just what I objected to: and he said that was good tunnel practice, or anything of that kind. The Contractor had full control of his work. If he wanted to break over [1783] 6 inches or 21 inches or 30 inches, that was his privilege. He agreed to build a tunnel that had a concrete section of a certain width. The question of overbreak, what is normal in other tunnels, or whether it was abnormal or otherwise, is no concern of ours. They agreed to do it.

Mr. Smith: The point is: they did it as fast as could be done; and it tends to prove we were entitled to the time,—further time,—to do the job.

Mr. Wittschen: Well, let us suppose they met with flood control work: they agreed to do it in an impossible time; that is their business and nobody else's. They did not have to take the contract. So, I think all this evidence is immaterial.

(Testimony of Thomas L. Phillips.)

Mr. Smith: But the evidence shows what this amounts to in the specifications and plans and drawings and the geological report——

Mr. Wittschen: Are you claiming now that some drawings misled you, too?

Mr. Smith: Certainly.

Mr. Wittschen: That is the first time I heard of that.

Mr. Smith: Mr. Larson so stated. Mr. Larson stated there was no design for any timber layout in the drawings, and that customarily where timbers are——

Mr. Wittschen: No. He stated——

Mr. Smith: He certainly did.

Mr. Wittschen: If there was no design there, there was nothing that misled them.

Mr. Smith: That is the point. Where there is no design, it is no indication that permanent timbers will be installed; so the design confirms the——

Mr. Wittschen: I don't agree with Mr. Smith that the absence of a design has misled him. [1784]

The Court: There is much I do not agree with Mr. Smith about, and I am trying to protect this record. I indicated to both sides that would probably be the only comfort that one side would have when we are through. I know something about the practice here. When these matters go to the Circuit Court, there are offers of proof and rambling stories that never impressed me from the standpoint of any

(Testimony of Thomas L. Phillips.)

controversy. However, I have some definite ideas about those matters myself, all of which an Appellate Court or anybody else may not have, but I still retain them until my mind is disabused of them. I am striving to get a full hearing and give a full opportunity to both sides; and I want to allow every reasonable latitude, and I have tried to indicate, without doing violence to anybody's rights, my state of mind without divulging on that point where our task seems useless here. Do I make myself clear?

Mr. Wittschen: Possibly.

The Court: With that admonition, again we will try to proceed and get the merits of this case.

Q. You may answer the question. Proceed.

The Witness: Would you read the question, please?

(Pending question read by the reporter.)

The Witness: A. About 8 per cent.

Mr. Smith: Q. Is that a normal amount of overbreak? A. Yes, it is.

Q. Referring to the shooting methods employed by the Contractor, did you observe them at all during the times you were in the tunnel?

A. Yes; a few times.

Q. Were the shooting methods adopted and pursued by the Contractor, so far as you know, entirely sound and in accordance with the usual practice?

A. Yes, I believe they were.

Mr. Smith: That is all. [1785]

(Testimony of Thomas L. Phillips.)

Cross Examination

Mr. Tinning: Q. Mr. Phillips, this morning I understood you to say that it was customary in tunnel construction to do all of the excavating and then follow through and put in the permanent lining?

A. That is customary in many places, and has been done in many tunnels.

Q. It has not been done in many other tunnels, has it, Mr. Phillips?

A. Well, a good many other tunnels.

Q. Well, what has been the usual practice in the San Francisco Bay region? Would you say it was customary to construct those tunnels by driving through the excavation and completing the excavation and then putting in the permanent lining?

A. Well, I am not fully familiar with all the tunnels in the San Francisco Bay area.

Q. Are you familiar with the Yerba Buena Tunnel on the San Francisco Bay Bridge?

A. No; not fully familiar with it.

Q. You were quite familiar with the Broadway Tunnels. Didn't you know anything about the Yerba Buena Tunnel that was being constructed at the same time? A. Not very much; no.

Q. You know, as a matter of fact, that tunnel was not fully excavated before the lining was placed? A. That might be true.

Q. Well, that is one exception to the custom that you testified to?

(Testimony of Thomas L. Phillips.)

A. I do not know anything particularly about the Yerba Buena Tunnel, as I testified to.

Q. Well, you are testifying, as to custom, as an expert; and I assume, from that, that you have in mind the custom throughout this vicinity where the Broadway Tunnel was built.

A. No; that is not my answer. I said it was customary in some tunnels to do that, and I know of several tunnels where such work has been performed.

The Court: Q. Tunnels that they had to support?

A. Yes, tunnels that they had to support. [1786]

Q. In this vicinity here? What one have you in mind?

A. Your Honor, I don't know of any tunnels in this vicinity where they were entirely driven before they were concreted. However, the Oakland Antioch Tunnel, which is in this vicinity, was driven and timbered and is still standing timbered about half of its length. The concrete was placed in there,—the major part of the concrete that was placed in there was several years, or a few years, after it was built.

Mr. Tinning: Q. Is it customary to have collapses, cave-ins, in tunnels during construction?

A. Well, it occurs occasionally.

Q. Would you say it was a customary and usual thing in the construction of a tunnel?

A. No; I wouldn't say it was.

(Testimony of Thomas L. Phillips.)

Q. They had a cave-in in the Oakland Antioch Tunnel, did they not, during construction?

A. I understood they had, yes.

Q. A cavity was in the roof, and had to be filled up? A. I heard of that, yes.

Q. I believe that tunnel was constructed about 1910 or '11,—somewhere in that vicinity. Since that tunnel has been constructed, it required a great deal of maintenance in the timber, did it not?

A. I think it does, yes.

Q. And it had to be concreted, in part?

A. Well, it has been concreted at least in part.

Q. And in a number of the tunnels that you referred to, that you directly had to do with, both during construction and during maintenance, you have concreted tunnels in ground that was difficult, heavy ground?

A. You refer to the tunnels in Alameda County?

Q. No; I was thinking particularly of some of those that you referred to up in the Western Pacific, in your work as the assistant [1787] engineer; I think you mentioned one called the Spring Garden Tunnel, where you concreted?

A. That is correct.

Q. So it is customary in tunnels that are timber lined in ground that has weight upon it, where you are able to do it, and it is safe to do it, to keep it safe for construction, to put a permanent lining in it?

(Testimony of Thomas L. Phillips.)

A. That depends on whether it is an economical thing to do or not.

Q. Entirely on whether it is economical; not on safety?

A. Well, the safety feature would probably be one of the considerations.

Q. Isn't that the primary feature, so the trains can go through and the tunnel won't fall on them?

A. Well, railroad tunnels are carefully inspected. I would judge, if it came to the point where it was figured that the tunnel timber lining was not safe to operate through, why, of course, some other lining could be constructed.

Q. If the maintenance of the timber comes to a point where it makes it justified putting in a permanent lining, that is an economical feature, is it not?

A. Yes; that is the proper thing to do.

Q. Do you know the Waldo Tunnel which is on the north approach to the Golden Gate Bridge?

A. I know where it is.

Q. Have you been through it, Mr. Phillips?

A. I have driven through it since it was completed.

Q. Did you know that that tunnel was lined before it was fully excavated?

A. Yes, I understood it was.

Q. Was that done in the customary manner?

A. I did not refer to all tunnels being held open and not concreted until they were completed as a

(Testimony of Thomas L. Phillips.)

customary manner. I said that was customary to do that in some instances. [1788]

Q. Well, I think, in fairness, Mr. Phillips, your statement was that it was customary to do all of the excavation and then put in the lining. Those are the words of your testimony.

A. I did not say in all the tunnels.

Q. Well, what tunnel were you referring to when you made that statement?

A. That was the custom on some of the tunnels that I know of, and that was our custom on the Western Pacific.

Q. Was the Western Pacific tunnel that was driven in 1903 and 1904, in Niles Canyon, driven all the way through and then the lining put in afterwards?

A. With the exception of the concrete at the west portal and a section of concrete under the point where the Spring Valley Water Tunnel crossed over it.

Q. There was considerable difficulty encountered in the construction of that tunnel, was there not? A. Yes, there was some difficulty.

Q. The contractor left the work before it was completed, did he not?

A. Well, the contractor left the work with an understanding of the company.

Q. On 15 minutes?

A. No. The contractor felt that he did not want to complete the work, and the company agreed

(Testimony of Thomas L. Phillips.)

that they would take it over. There was not any radical dispute or any trouble over it.

Q. What was the name of the company that constructed that tunnel?

A. E. B. and A. L. Stone Company.

Q. Were any of the Bechtels in that work for the E. B. and A. L. Stone Company? A. No.

Q. Were any of the Bechtels employed by the Western Pacific in the completion of the tunnel after the contractor left? A. No.

Q. Now, with respect to your statement regarding customary methods [1789] of driving a tunnel to do all of the excavating and then put in the lining: Do you know the Stockton Street Tunnel here in San Francisco?

A. May I call your attention that I did not say that.

Q. Will you answer the question and then call my attention to your explanation?

A. Yes, I know the Stockton Street Tunnel; but I did not testify that that was the customary thing to do in all tunnels.

Q. Do you know the vehicular tunnel at Point Richmond that parallels the Santa Fe Railroad Tunnel? A. Yes, I know where it is.

Q. Isn't it a fact that that tunnel,—the lining was put in before the excavation was completed?

A. I don't know.

Q. Do you know that? A. No.

Q. Do you know the Figueroa Tunnels, built in Los Angeles, on Figueroa Boulevard, in 1931 and 1932? A. I have heard of them.

(Testimony of Thomas L. Phillips.)

Q. Do you know, in those tunnels, that the lining was placed before the excavating was completed?

A. No; I do not know.

Q. And that the tunnel was supported against the core while the lining was being placed?

A. No.

Q. Those tunnels are tunnels somewhat larger than the Broadway Tunnels involved here. You don't know anything about that?

A. Well, I know it is quite a good-sized tunnel, but I don't know anything in particular about the construction or the construction methods.

Q. Do you know the construction methods of the Hollywood Tunnel? A. No.

Q. In Los Angeles. Do you know the Sepulveda Tunnel in Los Angeles? A. No; I don't.

[1790]

Q. Do you know about the Southern Pacific Bayshore Tunnel No. 4 here in San Francisco?

A. I know a little something of that, because that tunnel was just about finished at the time I came to San Francisco.

Q. Well, you know that that tunnel was lined before the excavation was completed.

A. I think probably you are right about that.

Q. Isn't it also true that Southern Pacific Bayshore Tunnel No. 1 was lined before the excavation was completed?

A. I am not so sure that I know about that.

Q. In arriving at your conclusion as to the customary and proper methods of driving the Broad-

(Testimony of Thomas L. Phillips.)

way Tunnel, didn't you make a study of the manner in which other tunnels in the Bay area had been driven?

A. Yes, of course I have done a good bit of thinking and reading about tunnels; and the tunnels that I have referred to as being driven through, and fully timbered where timber was necessary, was because I classed them by the kind of a tunnel it was. This tunnel was expected, or evidently expected, to be, from the geological report and the specifications, to be built through self-supporting ground. [1791]

Q. Will you please give us now a list and the dimensions of each of the tunnels which you used as a criterion in arriving at your statement that it was customary to do all of the excavation before putting in the lining, give us the location, the name of the tunnel, and the size?

A. A great many of these tunnels, in fact the major portion of them, as I understand it, on the Metropolitan Water District, in Southern California, were driven and timbered where necessary before concreting.

Q. What is the size of those tunnels?

A. I think they are about 16-foot tunnels, something of that kind, in size.

Q. Do you figure those comparable with a tunnel 35 feet in breadth and about 30 feet high?

A. Well, I would not make very much distinction in the size, so long as you expect to find the ground self-supporting.

(Testimony of Thomas L. Phillips.)

Q. You do not think the size has much effect upon the problem of how a tunnel should be driven?

A. Not a great deal, if you have good ground.

Q. You differ from Mr. Larson and some of the other experts who testified here earlier in the case?

A. I don't know that I differ from them.

Q. What about the character of materials through which the Metropolitan Tunnels were driven, were they comparable with these—there are some ninety miles of tunnels in the Metropolitan project. Have you seen the tunnels?

A. No, I have not seen the tunnels.

Q. Now, we have got the Metropolitan and you have not seen them. So your knowledge of what it might be is based upon reading, and from your reading did you ascertain that a very large proportion of these tunnels were through hard rock?

A. The character or hardness of the rock has very little to do with the driving of the tunnel, that is the supporting feature of the tunnel; it is the self-supporting feature that I am referring to.

[1792]

Q. Wouldn't you say that if a tunnel was driven through hard rock it was self-supporting?

A. If it was driven through hard rock?

Q. Yes.

A. Not necessary. Hard rock is sometimes very blocky and will not hold up any better than soft stone.

(Testimony of Thomas L. Phillips.)

Q. Then in the plans and specifications, would you say that the fact that no support was required indicated to you that any particular kind of material was going to be encountered by you?

A. It would not make much difference, so long as it was supposed to be and estimated to be self-supporting ground.

Q. Whether it was hard or soft, if it was self-supporting that would be sufficient?

A. That is correct.

Q. As a matter of fact, the Metropolitan Water District tunnels are largely driven through hard rock, are they not?

A. I presume they are, some in hard and some in not so hard.

Q. And much of the Metropolitan District water tunnels did not require any timbering?

A. I think the major portion of them required timbering.

Q. Did you ever see the White Water tunnel?

A. No.

Q. Right at Banning? A. No.

Q. Isn't it a fact that there is a tunnel some three miles in length in which there is not one piece of timber? A. I don't know.

Q. Do you know the San Jacinto Tunnel?

A. I have heard of that tunnel.

Q. Is there timber in that tunnel?

A. I understand that a great deal of that tunnel is not timbered.

(Testimony of Thomas L. Phillips.)

Q. Name one of the tunnels on the Metropolitan Water District that is timbered?

A. I am not familiar with the names in my mind at the present time, but I think probably it is a fact that a greater portion of the Metropolitan District tunnels were timbered to some extent before they were concreted. [1793]

Q. You are not able to name one of them?

A. No, I am not.

Q. Can you name one of them that was not driven from both ends? A. No.

Q. You do know they were driven from both ends, do you not? A. No.

Q. You apparently have a rather vague idea of the details of that operation?

A. That is right.

Q. Now, name us some other tunnels upon which you base your opinion that it was customary to drive through before placing the permanent lining?

A. The P. G. & E. drove a tunnel at their Pit plant No. 3 in Shasta County—I cannot tell you the length of the tunnel but as I remember it was 19 or 20 feet in diameter.

Q. In the Sierras?

A. In the Sierras. And as I remember it some three miles in length. I have been informed, and I believe correctly so, that that tunnel was driven its full length fully timbered before it was concreted.

Q. Were the timbers taken out before the tunnel was concreted?

(Testimony of Thomas L. Phillips.)

A. No, the timbers I think were concreted in.

Q. Through what type of material was that tunnel driven?

A. That was a variable type of material.

Q. Granite?

A. No, I do not think it was through any granite.

Q. What kind of material was it driven through?

A. Well, it was commonly called soft ground tunnel, or largely soft ground tunnel.

Q. You don't know the names of any of the types of material?

A. No; that does not matter much in tunneling.

Q. Was that tunnel driven from both ends?

A. I think it was driven from both ends and probably some side adits.

Q. Was it necessary to pump out from the adits, pump water?

A. I think it would be if they drove down hill from the adits, I think they would have drained on the uphill side.

Q. Was there water encountered in the tunnel in driving?

A. I don't know whether there was or not.

[1794]

Q. What other tunnels did you base your statement on as to the customary method?

A. That is customary with the tunnel work done on the Western Pacific.

Q. So that your custom that you refer to is based on your operations on the Western Pacific?

(Testimony of Thomas L. Phillips.)

A. Largely.

Q. And not around San Francisco Bay?

A. Except the tunnels of the Western Pacific that are around San Francisco Bay.

Q. Now, let's go back to some of these tunnels around here. Is there any tunnel on the Western Pacific that has a width equal to the width of the Broadway Tunnel? A. No, there is not.

Q. Is there any tunnel on the Western Pacific that has a height equal to the height of the Broadway Tunnel? A. No.

Q. Do you consider that there is any tunnel on the Western Pacific that is driven in comparable material to the Broadway Tunnel?

A. Yes, I think probably the two tunnels in Niles Canon are fairly comparable.

Q. Were those tunnels in Niles Canon driven from one end or both ends?

A. They were driven from both ends.

Q. When you said that there was no space to place the material being excavated if the Broadway Tunnel had been done from the east end, did you have in mind that some 25,000 yards of material was placed in the gulch along the Fish Ranch Road by Six Companies during construction?

A. Yes, I remember that.

Q. Under the terms and specifications in this case the contractor had a right, if he wanted to have some place to put the material, all he would have to do would be to build a highway in accordance with the plans and specifications?

(Testimony of Thomas L. Phillips.)

A. Yes, but my answer to that was that the District did not provide any space.

Q. The plans and specifications state that the contractor must find a place to waste all of the dirt that he was unable to waste on the District right of way, and it was up to the contractor, was it not? [1795] A. I think that is correct.

Q. He did do that on the west side of the project, did he not, with a large amount of waste?

A. Yes, but the contractor at that time was apparently trying to, if possible, meet his completion date; therefore he started to work on the easterly end and went to the trouble and expense of finding a place and hauling the material to the place of disposal.

Q. Now, with respect to delay, you apparently made a study of the contractor's records in this case, although you did not come into contact with it until August, 1935; you talk about delay, do you know anything about the time that the contractor started underground on this tunnel?

A. Yes, I know something about that.

Q. And that he stopped his work for three or four weeks in August of 1934 while the subcontractor finished the foundation of the west portal building? A. That was ahead of my time.

Q. Did you consider that when you were discussing delay? A. No, I did not.

Q. Did you consider the fact that when the contractor poured the west portal rings, the first ap-

(Testimony of Thomas L. Phillips.)

proximately 100 feet of permanent lining in this tunnel in October, 1934, that he had no concrete plant on the job?

A. That was before my familiarity with this work.

Q. Now, do I understand that all of your considerations of delay and all of this testimony with respect to contractor's delays on this job are from the time you first knew it?

A. That is correct.

Q. So that prior to the time that you came on the work, or took the work up, which I think you said was August 5, 1935—

A. That is correct.

Q. When you were going on a trip over to Nevada, you took up the [1796] plans and specifications and made a study and then you came back and inspected the tunnel on August 8, 1935?

A. I do not think it was the 8th, I think it was the 11th or somewhere along there.

Q. Your memory is probably better than mine. You have not considered in your estimate of delay anything prior to the time you took up the study of the project? A. That is correct.

Q. You say the placing of the steel delayed the excavation of the tunnel?

A. The tunnel work was closed down because the timbers were showing weight, and in order to catch up with the concrete work and the placing of the steel did not necessarily delay the excavation,

(Testimony of Thomas L. Phillips.)

but it delayed the catching up of the concrete with the excavation so that the excavation could not proceed.

Q. If the contractor had followed along with the orderly procedure of placing the concrete lining and keeping it at approximately a uniform distance behind the excavated face, there would have been no delay attributable to the cause that you have just stated, would there?

A. That is true, but that needs a little explanation. The schedule submitted by the Six Companies to the District in February, 1935 provided for the concrete lining to start six months behind the excavation schedule. This schedule was submitted to the District and apparently no objections were raised, therefore the contractor figured that the schedule was satisfactory to the District.

Mr. Tinning: We ask, if your Honor please, that the witness' answer go out as a conclusion and not responsive to the question.

The Court: It may go out.

Mr. Tinning: Q. Mr. Phillips, if the contractor had followed the excavation with concrete lining in an orderly manner, 100 feet, or 200 feet, or any given distance, the placing of the steel would not have delayed the completion of the work, would it?

[1797]

A. I am not so sure about that.

Q. How could it have delayed the completion of the work?

(Testimony of Thomas L. Phillips.)

A. Well, the necessary time to place the forms, place the steel and the concrete might have taken as much time or more time than the actual driving.

Q. Well, do the records of the contractor show at any time when he was proceeding with the concreting in an orderly manner following along behind that he had any difficulty in keeping up with the excavation? A. No, I think that is true.

Q. It is true he had a 27-foot form, and when he kept his concrete up he was always able to keep his pour so that he would keep his form within approximately the same distance of the excavated section?

A. I think after the concreting was caught up that is probably about correct.

Q. How much longer would it take to place two curtains of steel in the concrete forms than it would to place one, in hours?

A. Well, that is problematical, because in the first place it depends entirely on how much steel is in each curtain, or how much more curtain there would be in two curtains than in one curtain.

Q. Of course, I am only a lawyer, but you said that there were two curtains placed; how much longer did it take on any of these places, I am not talking about where there had been a cave-in, but I am talking about a place of normal operation with forms, steel forms, and where there were two sets of reinforcing steel. As I understand it, I may be getting in deep water, but the plans provided for a

(Testimony of Thomas L. Phillips.)

standard integral reinforcement of a lining or curtain that was placed just inside of the lining over the tunnel and that where extra reinforcement was put in that it was raised about 18 inches above it, so that it was near the outside surface of the concrete. Am I correct about that?

A. Yes, you are correct. [1798]

Q. Take what was actually done in the tunnel at some place you have given this as a source of delay; tell me how many hours in placing one of these forms, placing the additional reinforcing steel in that manner, occupied?

A. Well, I could not tell you how many hours. The only thing I could possibly do to answer your question is to say that if the curtains were to be of the same make-up it would probably take at least twice as long to place two curtains that it would one.

Q. How long did it take to place one?

A. I don't know.

Q. How, then, if you don't know how long it would take, can you say it caused delay?

A. I know that it would take more time to place two curtains than it would one, and not only that, it would take more time to put in the concrete.

Q. Why does it take more time to put in two curtains than one?

A. Because there is twice as much work.

Q. Couldn't you put twice as many men on?

A. No, I doubt if you could work twice as many men under those confined conditions.

(Testimony of Thomas L. Phillips.)

Q. How many men did the Six Companies use in placing the steel?

A. I don't know how many.

Q. You don't know? A. No.

Q. So you don't know, Mr. Phillips, whether or not it would take them twice as long to place two curtains as one?

A. Yes, I am satisfied I do know.

Q. You think you do, although you don't know how many men they had on it, or whether or not they could have put additional men, or whether they did put additional men on?

A. No, I don't know, but I have had experience in placing steel in confined places, and I am satisfied it would take longer.

Q. You said a few minutes ago that the schedule furnished by the Six Companies on February 9, 1935, under which they planned to have the concrete follow the excavation by a period of six months. Will you [1799] show us what you mean on this, Mr. Phillips? I am showing you my copy of Defendant's Exhibit O.

A. This is substantially correct. That is what I had reference to.

Q. In other words, you referred to the schedule which was furnished which showed they planned to commence concreting on the 1st of May, 1935?

A. No, the 1st of June.

Q. The 1st of May?

A. I was off a line. That is correct.

Q. My memory was not clear on it and I was

(Testimony of Thomas L. Phillips.)

trying to be sure that we were talking about the same thing. What does this chart signify to you, Mr. Phillips, with respect to the word "concrete"? Where does excavation show on this chart? I guess that must be it started November 1, doesn't it?

A. I think that is correct.

Q. When you were talking about six months you were referring to May 1, as shown on this chart, and it is a fact that the excavation was started about November 1 after these first rings were put in? A. Yes.

Q. When you went into this tunnel in August did you inspect the tunnel timber in detail?

A. Yes, I looked over the tunnel timber very carefully.

Q. Was the tunnel timbering system similar to the timbering system in the Western Pacific Railroad tunnels? A. Yes, very similar.

Q. What was the difference in the system of timbering in the north tunnel from the standard system used by the Western Pacific Company in its tunnel timbering?

A. It was the same as had been used a great deal with the exception that a large portion of that wall plate was not continuous.

Q. And in the Western Pacific tunnels you used a continuous wall plate?

A. When we used a wall plate system we used a continuous wall plate.

(Testimony of Thomas L. Phillips.)

Q. For instance, in this Spring Garden Tunnel, did you have a continuous [1800] wall plate?

A. Yes, that was built, originally built with a continuous wall plate.

Q. Now, you went in the south tunnel and inspected the timbers, did you? A. Yes.

Q. At the same time? A. Yes.

Q. What system was used there?

A. Well, that system varied some; largely, however, it was with the sections of wall plate.

Q. That is, short pieces of wall plate under which there were three timbers, plumb posts, and that would support only the two rings?

A. Yes, substantially that.

Q. Did you find when you inspected the timbers in the Broadway Tunnel that they were tightly packed against the surrounding rock?

A. Yes. However, they were not always tightly packed down at the lower sections of the posts.

Q. You found those posts were in at the bottom in a good many places?

A. In some places the posts were in at the bottom.

Q. You found some places that the mud sills or mud blocks at the bottom of the posts were higher than the excavated floor of the tunnel, did you not?

A. Not higher than the excavated floor of the tunnel, as I remember.

(Testimony of Thomas L. Phillips.)

Q. Don't you remember finding that in any place?

A. No, not higher than the floor of the tunnel.

Q. How would you compare the workmanship, the quality of workmanship of the timber that was in the tunnel when you inspected it on August 5 or August 8, whichever it was, whichever date you went there, and the workmanship in the timbering in the tunnel that was done after driving was resumed in November, 1935? Was it the same?

A. Yes, I think it was substantially the same.

Q. You think it was the same?

A. Except that there was a different type of timber used in the south tunnel. [1801]

Q. We are discussing the quality of the workmanship.

A. Yes, the quality was about the same.

Q. How did the workmanship compare with the workmanship in the Spring Garden Tunnel?

A. In general the workmanship was about the same with the exception of possibly the solid backing of the lagging. Of course, in a finished timber-lined tunnel there is more attention paid to the appearance of the lagging in order to make it a complete job.

Q. Where lagging is used in a permanently timbered tunnel, I assume it is rather regularly placed, so that you get a better effect in the timbers?

A. Yes, that is right; they are probably more careful than they would be in temporary lining.

(Testimony of Thomas L. Phillips.)

Q. In your tunnel work that you did on the Western Pacific did you have your rings, entire timber rings, vertical, so that the segments of the arch are vertical, on the same plane with the plumb posts? A. Yes, that is right.

Q. So that the rings and the segments above the wall plate are practically above the plumb posts?

A. That is right.

Q. Did you find any timbers in this tunnel that the segments were not vertical above the plumb posts?

A. Oh, yes, I found some that were probably somewhat out of line.

Q. Did you find any that were as much out of line that the caps were entirely outside of the projection of the plumb posts of the roof?

A. No.

Q. You did not find any? A. No.

Q. Did you find any places where the joints of the segments of the arch were open as much as one inch or two inches?

A. Yes, some of them were open. I could not tell you whether they were open that much or not.

Q. Did you find any places where the aggregate opening between the [1802] various joints of the seven segments of the arch were in excess of six inches? A. No.

Q. If there had been such timbering as that in the tunnel it would have been weak timbering, would it not?

(Testimony of Thomas L. Phillips.)

A. It would probably have shown a great deal of pressure, that is, if the arch had come down to a point where the points of the segment were carrying the load.

Q. That would not be a good condition of the timber, would it?

A. It would not be a good condition of the tunnel, it would show very heavy ground.

Q. When you went in there inspecting that tunnel did you find any place where the mud sills were above the actual excavated bottom of the tunnel?

A. No, not to my knowledge.

Q. Did you find that the bottom of the plumb posts were placed on a uniform grade?

A. No, they were not on a uniform grade.

Q. It is not good practice, is it, to place plumb posts, the bottoms of the plumb posts on different elevations?

A. I do not think it makes any difference so long as they are going to be encased in concrete.

Q. You don't think that it makes any difference if you have to excavate a foot wall trench below them to have some of them standing up above the top of the foot wall trench?

A. Of course, that would make a difference if you had to go too deep below the posts for a trench.

Q. You studied the construction of this tunnel, Mr. Phillips, and you know, don't you, that it was necessary, where the mud sill was placed above the bottom of the designed section of the pavement to

(Testimony of Thomas L. Phillips.)

go down with a trench to place the foot wall for the concrete lining?

A. Yes, and that was actually done.

Q. You also know that in many places the plumb posts were installed above this excavation and at varying elevations above it? [1803]

A. Yes, they were not uniform with the grade of the tunnel in all instances.

Q. It is also true, is it not, that when you visited the tunnel on the morning of the 28th of August, 1935, that there were some 900 feet of foot trench standing open in the tunnel?

A. There was a considerable amount.

Q. With water in them?

A. Some of it had water.

Q. And in some places the plumb posts were actually hanging over the edge of the trench, a portion of it?

A. No, they were not hanging; they were over, but they were braced so that they could not come in.

Q. Braced by having a diagonal brace four or five feet above the bottom against the railroad track ties, or something else on the floor of the tunnel?

A. They were thoroughly braced against the ground.

Q. Do you think that was a safe condition?

A. It probably was not the very best practice, but however no posts came into the trench when it was in that condition.

Q. None of the posts came in? A. No.

(Testimony of Thomas L. Phillips.)

Q. The contractor had some luck. I am going to show you Defendant's Exhibit J-4, which is the timber diagram of the timber installed in the north tunnel from station 122 to station 130, approximately, and I will ask you to examine that timbering and ask if in your judgment that timbering is comparable to the kind of timbering that was placed in the Western Pacific Railroad tunnels, as to alignment?

A. I think it is a good timber job.

Q. You think it is? A. Yes.

Q. For instance, let us look at a set here at 125+12, where you have segments running around—the segment isn't over the plumb posts, is it?

A. That is not necessary. [1804]

Q. That is not necessary? A. No.

Q. You think that is good practice?

A. That is all right; the wall is built strong enough to hold it.

Q. Even in the area of a heavy ground?

A. With an exceptionally heavy load it might be different.

Q. If you had a heavy load on these timbers placed as I have shown them to you at this point they would not sustain when they are placed in that manner the maximum load that the same sized timbers placed vertically above the plumb posts would sustain, would they?

A. There would be very little difference.

(Testimony of Thomas L. Phillips.)

Q. There would be very little difference?

A. Yes. [1805]

Mr. Smith: Q. What station were you referring to?

Mr. Tinning: I think, 125 plus 10.

Mr. Smith: 125 plus 10?

Mr. Tinning: Yes.

Mr. Smith: And which tunnel is that in?

Mr. Tinning: North tunnel.

Q. We have here, apparently, all of the different varieties of timbering that were used in the tunnel. We have the three plumb posts under the short wall plate. I am now pointing to 123 plus 30. That is what you stated was in the south tunnel?

A. Yes, there was some of that in the south tunnel.

Q. Is that comparable in strength to timbering which is put in by the wall plate?

A. Yes, I think it is.

Q. Equal? A. It is probably equal.

Q. Why was the wall plate put in the rest of the tunnel?

A. Because of the convenience in driving.

Q. It is a matter of method, not of strength?

A. I think so. I think the timbers would be of equal strength.

Q. Would you say, referring now to Station 123—well, between 123 plus 00 and 123 plus 10, the set I am showing you here now, which indicates that the segments were out of line toward the west

(Testimony of Thomas L. Phillips.)

portal, would you say that that was a good piece of timbering? A. Yes, that is all right.

Q. That is all right. You allow that in your Western Pacific tunnels?

A. Yes. We don't install them that way, if we can possibly help it; but, however, it happens sometimes. We make no exception about the timbers.

Q. When you come to 123 plus 70, the timbers that show there where we find a segment starting on the wall plate, a short wall plate [1806] above cross adit No. 2, and swinging out of line and back again; do you consider that that is good timbering?

A. Yes, that is temporary timbering in the tunnel.

Mr. Smith: Were those last named stations in the north tunnel?

Mr. Tinning: They are all in this exhibit, yes.

Q. Now, I understood you to say this morning that as a result of the advice that Mr. Tibbitts and you gave Mr. Boggs in this conference on August 16th and 19th that he increased the steel that was being installed in the concrete lining

A. No. I did not say "as a result"; at least, that was not my intention. But the amount of steel in the lining was increased immediately after our visit to Mr. Boggs.

Q. Your visits were on August 16th and August 19th, were they not, Mr. Phillips?

A. Yes, that's right.

Q. Isn't it a fact, after—Isn't it a fact that the

(Testimony of Thomas L. Phillips.)

first pour with the steel forms which were brought on the job about July 1st was made in the upgrade tunnel on July 20th?

A. I don't know the date.

Q. Have you gone into these records?

A. Well, I wouldn't have them right at the tip of my tongue.

Q. Then, if there was a pour made on July 20th, and a pour made on July 27th, and a pour made on August 5th, and a pour made on August 10th, in the tunnel, those were the first four settings in steel forms in the south or upgrade tunnel, and isn't it a fact, Mr. Phillips, that in each one of those pours there was a double curtain of reinforcing steel? A. I don't know.

Q. You don't know. Then, why did you say the steel was increased after you gave this advice on the 16th and the 19th of August to Mr. Boggs?

A. That was my understanding from the records I examined. [1807]

Q. Isn't it also true that the first pours that were made in the north tunnel with the steel forms, —I am referring to the first pour made after the rings were put in at the west end,—were made on August 8th, August 13th, August 19th and August 23rd? A. I don't know the dates.

Q. Isn't it a fact that the pour made on August 8th and the pour made on August 13th, which was before you saw Mr. Boggs, were both made with the double curtain of steel?

A. No; I don't know.

(Testimony of Thomas L. Phillips.)

Q. You don't know. But, if that be a fact, then it would not be true that the steel required by the District Engineer was increased following your visit to see Mr. Boggs?

A. I wouldn't say that, because the amount of steel may have been increased.

Q. Well, you don't know that it was, do you? You apparently don't know what went on before at all, Mr. Phillips? A. Before August 5th?

Q. Before the time that you talked to Mr. Boggs, you don't know how much steel was used?

A. Well, that is perfectly true.

Mr. Tinning: No further questions.

The Witness: I have probably been misinformed on that. My understanding was that the steel was increased after that certain date.

The Court: Is that all from the witness?

Mr. Tinning: No further questions.

The Court: We will take a recess.

(After Recess)

Redirect Examination

Mr. Smith: Q. In cross examination, in answer to a question about a tunnel that had been fully driven without permanent concrete lining being installed, you mentioned the only one you knew [1808] of, in this vicinity, was over in Niles. Do

(Testimony of Thomas L. Phillips.)

you know of another one that you forgot to mention?

A. Yes; on the Western Pacific tunnel through the Potrero Hills in San Francisco.

Q. That is the tunnel you mentioned on your direct examination this morning as work you had been doing? A. Yes.

Q. Was that tunnel timbered throughout?

A. It was timbered throughout by the wall plate system, and stood for many years without the necessity for any retimbering.

Mr. Smith: That is all.

Mr. Tinning: No questions.

OTTO W. PETERSON,

Called by the plaintiff; sworn.

Direct Examination

Mr. Smith: Q. Where do you reside, Mr. Peterson? A. 6209 Rockwell Street, Oakland.

Q. What is your present occupation?

A. My present occupation is construction engineer with the Pacific Gas and Electric Company.

Q. You are connected with that concern on a permanent basis? A. Yes, sir.

Q. Will you state to the Court when you first engaged in engineering work, and, particularly with reference to tunnel work, state your experience in connection with tunnel work from the beginning to

(Testimony of Otto W. Peterson.)

the present time, and, where you mention that tunnel work that you have had anything to do with, will you state your function or duty and the way the work was handled by you, and what the tunnels were, and their dimensions? You heard the testimony of Mr. Phillips this morning? A. Yes.

Q. More or less along the same lines.

A. My first practical experience was in the summer of 1932. I was—— [1809]

Q. 1932?

A. 1902. I worked as a rod man and chain man in Fresno County, California, for the Division of Agriculture—the Department of Agriculture, rather. Following that, I went to Southern California. I worked for Mr. J. B. Lippincott, and for the United States Geological Survey for one year's time, mainly on underground water tests and measurements, and on surface water measurements. Following that, I attended the University for a final year of civil engineering.

Q. What university?

A. University of California; graduating in May, 1904. I then spent a year's time on field work, making measurements of surface waters in the State of California for the United States Geological Survey. Following that, I went to Yuma, Arizona, on surveys and general office work, locations, designs and so forth, connected with the Yuma Irrigation Project.

Q. Who was the owner of that?

(Testimony of Otto W. Peterson.)

A. That work was for the United States Reclamation Service. Mr. Lippincott was the supervising engineer, at the time, of that division.

Q. In what years was that?

A. That was in 1905 and 1906. I resigned from that employment to work for a contractor,—the Spring Construction Company,—in about the spring of 1907; and was engaged on street and sewer and general improvement work mainly in Berkeley for a period of about 5 months. I was then offered employment as construction engineer for the California Development Company on work connected with the closing of the Colorado River break; and I went down to the Mexican border and was the engineer on the levee construction in Mexico connected with the closing of that break for a period of about the better part of one year. I also did some other incidental work connected with river control in Lower California during that period, or the lower part of the Delta region below the Imperial Valley. [1810]

My next employment was with the Orland Irrigation District in Glenn County in 1908, where I was in charge of their first construction, building a diversion dam, as engineer and superintendent and in various works of estimating future construction.

Q. Was that work done—

A. That work was done directly by the United States Reclamation Service with their own forces.

Q. How long were you there?

(Testimony of Otto W. Peterson.)

A. I was there about one year. I then went with the City of Los Angeles on construction of the original Los Angeles Aqueduct in 1909, at least as a foreman or general foreman, or superintendent, of one of their camps, and doing steam shovel excavating and concrete lining for the covered conduit sections for a period of several months. I was then moved to a similar division or section of work, mountainside work,—somewhat more difficult; steam shovel work and concrete lining construction. Following that, I was placed in charge of two divisions of work,—a section of 40 miles, steam shovel excavation and concrete lining along the easterly slope of the Sierra Nevadas in Inyo County. I was on that work a total of four years' time.

Q. That work was for the account of the City of Los Angeles?

A. That work was for the account of the City of Los Angeles; and, except for very incidental features, was built entirely by City forces and employees.

My next employment in the spring of 1913 was with the Pacific Gas and Electric Company, as superintendent in charge of the Drumm Power Project in Placer County. I was superintendent of this particular project, and also acted as an assistant to the general superintendent of the Company, and was engaged at the time in the building of Lake Spaulding Dam and the Spaulding Tunnel and other work. This project involved the building of

(Testimony of Otto W. Peterson.)

about 7 miles of mountainside [1811] canal, various flumes, a reservoir on top of a hill, a forebay on which we used a great number,—some 500 mules or so, in scraping and moving of dirt, pipelines, a power house; and, in connection therewith, there were two tunnels,—two soft ground tunnels: one about 500 feet, 12 by 12 in size, timbered, and not concrete lined at that time; and the second tunnel, of about 10 by 10 in size, through soft ground, several hundred feet long, also only timbered at that time.

The Court: Were those tunnels cemented later?

A. About 15 years later, those tunnels were concreted. In addition, we were, at that time, building a hard rock tunnel about one mile long from Spaulding Dam to the head of Bear Valley, this tunnel being about 12 by 12 in size. Following the completion of that work, I was employed by the Eastbay Water Company to make a valuation of the properties in the early part of 1914. This was mainly a valuation job, with a staff of some 50 or 60 assistants, covering the physical properties of the Company,—a valuation being made at that time for refinancing purposes, or to give information to be used for refinancing purposes.

Leaving that work after about 6 months' time, I was employed by the United States Reclamation Service and the State of California jointly, to make a final investigation and report on the Pit River area in northeastern California, covering the possi-

(Testimony of Otto W. Peterson.)

bility of development in irrigation, power and so forth. In connection with that work, I made estimates on several dams and incidental structures, and made a report. I was next employed, for a period of about 1½ years—

Mr. Smith: Q. Commencing in what year?

A. Commencing in,—I think, in 1915, and running into 1916, by the Modesto Irrigation District as a construction engineer in charge of the [1812] reconstruction of their major works, their canals, reconstruction of two dams, the replacement of a number of flumes,—timbered flumes,—by hydraulic fills, the enlargement of a tunnel. A large part of the canal was lined with concrete, and over these hydraulic fills we built reinforcing concrete flume structures. The tunnel on that particular project was unlined,—an unlined tunnel through a hardpan formation. The size originally was about 12 by 12 feet; the tunnel, being about 2,000 feet long, was enlarged without the use of any timber. It was arched and stood unsupported.

Q. Was that work done under your supervision by forces—

A. No. Most of that work,—practically all of the work on the project, or all of it—there may have been minor exceptions—was done by various contractors; and I acted as the clearing agent for the district in the dealings with those various contractors.

Q. What were your particular duties in connection with the tunnel: merely supervisory; or did

(Testimony of Otto W. Peterson.)

you have physical duties in connection therewith?

A. Well, the enlargement work was done by a contractor. I had charge of the plan for the enlargement and supervised handling the work for the district in the dealings with the contractor and in executing the work.

Q. What followed that?

A. Next, I returned to the Pacific Gas and Electric Company about the end of 1916, I think, or the first part of 1917, mainly for the reason for the addition to the Spaulding concrete Dam and the building of three supplemental dams required at that place. After the work on these dams was completed, I had charge of the building of two tunnels in the vicinity of Auburn, with a total length of about one mile or 1½ miles. These tunnels were, in part, driven through soft ground and, in part, driven through very hard material. A considerable portion of the tunnels [1813] was lined with timber at the time and subsequently have been concrete lined.

Mr. Tinning: May we have the size of the tunnels?

A. The size of the tunnels was about 9 feet. They were small tunnels.

Mr. Smith: Did you ask a question, your Honor?

The Court: I was going to ask for the size.

Mr. Smith: Q. Was that work done, including the tunnels, by company forces?

A. All of that work was done by contract. The raising of the dam was done by Twohy Brothers,

(Testimony of Otto W. Peterson.)

and the work on the tunnel was done by a contractor who is no longer in business in this locality. Also, in connection with that period of employment with the Pacific Gas and Electric Company, I maintained the headings of a proposed 7-mile tunnel through the Big Bend of Pit River. That property had been purchased from a company called the Mount Shasta Power Company, and it was proposed, at the time, to carry a 7-mile tunnel through the Big Bend of Pit River for power development purposes. These particular tunnels were in very heavy ground,—swelling ground; and we maintained them and also drove them forward a distance of probably 1,000 feet each, maintaining the timbering during that time.

Q. They were not constructed, at that particular time, in full?

A. No. The major tunnel was not constructed at that time. I then took a leave, or was permitted to leave the Pacific Gas and Electric Company for a consulting job in Korea, which was supposed to take about a month's time in the early part of 1918. I went over there to look over a power project for the Oriental Consolidated Mining Company, commonly known as the American Mining Concession in Korea; inspected a proposed dam site, a tunnel, a power project; [1814] tested the feasibility of this proposed development, and made plans and designs; and, as these things, developed, they necessitated that I stay out there, so I continued to obtain the

(Testimony of Otto W. Peterson.)

necessary permits from the Japanese officials and proceeded with the construction of the work, with the assistance of several men that I obtained from the mines,—several young men who acted as assistants, and some Koreans who were able to assist; and I carried on that work with about 500 Korean workmen, about 500 Chinese, and built a masonry dam over one of their torrential rivers, and a hard-rock tunnel about 14 by 14 feet in size and about 2,000 feet long; and the other features of this power development, finishing the work in the summer or early fall of 1919, after 1½ years' time. Also, during my stay in Korea, I did consulting work for the French Mining Concession on a proposed power development involving estimates for tunnels and other purposes of construction, and for some Japanese associated on a government irrigation project, the main feature of which was a high concrete dam. [1815]

I returned to the United States in the fall of 1919, reentered the employ of the Pacific Gas & Electric Company, and started the work of building Pit 1 tunnel, which was a two-mile tunnel, carrying water from the Fall River, a tributary of Pit River, in Shasta County, through a mountain divide, this tunnel being about 14 feet in diameter inside of the concrete lining, and two miles long. The tunnel was driven through volcanic material in the main, all of which required timber support. The tunnel was built under a contract with the Orlandi Com-

(Testimony of Otto W. Peterson.)

pany, and at the completion of that job we had a settlement to make which was accomplished without going into court, which was satisfactory to the company and to the contractor. I did not remain following the finish of that work but left the Pacific Gas & Electric Company for a period of five months, and started in the summer of 1920 to accept employment with the Shattuck Construction Company, on a contract which they had just taken to complete the building of Tunnel No. 1.

Q. Is this the same tunnel No. 1 you mentioned?

A. No, this tunnel No. 1 is located in Plumas County, and was under construction for the Western Power Company, to carry water for power purposes from Lake Almanor to Butte Valley. This tunnel had four main shafts on it, the deepest of these shafts being 400 feet. During the period I was there I completed the sinking of one shaft, which was the source of a great amount of trouble; the lower end of that shaft was completed in what appeared to be an old river channel in sand formation, and we carried on the driving of the other headings, about six in number, from the west portal, from C shaft. After this shaft was finished I went over to B shaft about 350 feet deep, and over to A shaft, which was about some 200 feet deep. This particular tunnel was an unusually wet one, containing the very wet ground, in fact at that time it was considered to [1816] be the wettest tunnel so far driven in California; after a period of eight

(Testimony of Otto W. Peterson.)

years it still has leakage in excess of 6,000 gallons coming into it after standing empty without having water flow through it for a period of seventeen years.

Q. Can you give us the dimensions of that?

A. The dimensions of that tunnel finished inside of the timbers is about 7 feet in the width of the floor and about 7 feet between the floor and the timber lining at the top. It is almost entirely timber lined. In addition to the usual timber it had timber side walls inside of the timber sets and timber lines, so it is in effect an underground system.

Mr. Tinning: Q. Did you say 6,000 gallons an hour?

A. 6,000 gallons a minute, is the normal leakage that still comes into that tunnel after a period of about eighteen years.

I was then offered employment by the Pacific Gas & Electric Company about the first of 1921 to take charge of all of the major construction work of the company. They wished particularly to have me take charge of the Pit River construction which was just getting under way on a large basis, so I returned to the Pacific Gas & Electric Company and carried through the completion of the Pit 1 tunnel. We contracted for the actual construction, and I represented the company. We built the Pit 1 power plant and two power plants on Hat Creek, initially, and then in 1923 we proceeded with the building of Pit 3 power plant, which involved the

(Testimony of Otto W. Peterson.)

building of a dam and tunnel of four miles in length, 19 feet diameter inside of the finished concrete.

Q. How large was the excavation?

A. The excavation of the tunnel being about 23 feet by 23 feet inside, the tunnel being entirely timbered and subsequently lined inside of the timbering; and also in connection with the project the usual pressure pipe lines and [1817] power house, etc. While this work was going on we also had other construction involving the addition to the Lake Spalding Dam, and plant construction, etc. About 1926 we had other construction come along, one of the tunnels being the Melones Tunnel in Tuolumne County, which was about a mile in length, the lower end of the tunnel being on a steep incline. This tunnel was in hard rock formation about 14 feet by 14 feet in size, inside of which the concrete lining of which was placed with the use of very little timber, and we enlarged Spalding Tunnel, and the hard rock tunnel, and also built several small tunnels in Placer County, short tunnels of a quarter of a mile or less in length, and some were gunited and some concreted; and one tunnel under the reservoir in Placer County at a place called Drum. This tunnel was about one mile long, fully timbered, in soft ground; we lined that by moving in sections of precast pipe about five feet in size, I believe they were, joined them together, and we also enlarged about six other tunnels in Placer County

(Testimony of Otto W. Peterson.)

which were about 12 by 12 size, and outside in the neighborhood of 16 feet size, and lined them in the main with a reinforced gunite. In 1928 we undertook power development work on the Mokelumne River, involving in the main a large rock fill dam, 20-mile conduit, power house, pipe lines, etc. Incidental to this work there were constructed an outlet tunnel from the reservoir of about 20 feet or 22 feet in size, lined with concrete, to a diameter of 19 feet, about 6 small tunnels aggregating about a mile in length and about fourteen feet by fourteen feet in size, some through hard rock and some through rock which was hard granite, but blocky and fractured, and requiring timber support; some through slide material, requiring quite heavy timbers; and in addition one two-mile tunnel of about 11-foot size, which was driven through hard rock and did not require concrete lining. About two [1818] years ago we undertook the building of an eleven and one-quarter mile tunnel in Stanislaus River which was 11 feet in size through hard rock formation. That tunnel has been under way for something less than two years time and is now one-half finished.

In addition to the work which I have described I also had charge of steam plants, sub-station construction, and in the last seven or eight years all construction of the company, including pipe lines, pole lines, power lines, miscellaneous work, a lot of maintenance of tunnels and dams and water conduits.

(Testimony of Otto W. Peterson.)

Mr. Smith: Q. During the construction of these various tunnels for the Pacific Gas & Electric Company which you handled as chief construction engineer for them, were they built with company forces or were they built by contract?

A. Well, in the main they were built by company forces. The Pit 1 tunnel which I have described was built by contract, and about four of the tunnels on the Mokelumne project were built by the W. A. Bechtel Company and an associate and a part of the Pit No. 3 tunnel was built by Bates & Boreland Company, of Oakland. Do you wish me to go on?

Q. I was going to ask you what your specific duties were in connection with the construction of all of these tunnels, take Pit No. 3, what were your specific duties?

A. I was in charge, in complete charge of the construction of the tunnel, supervising it from the San Francisco office, had charge of the construction. That had to do with all features of the work of the building of the tunnel, making the estimates and carrying through the complete construction of the work.

Q. Did you physically go upon the work frequently?

A. Yes, usually once a week or at least three times a month I would be on the work during the progress of construction.

Q. Did you exercise the duties or function of an engineer on the [1819] job under the contract during the course of construction? A. Yes.

(Testimony of Otto W. Peterson.)

Q. In behalf of the owner? A. Yes.

Q. During the last few years I understand you have been in the employment of the Pacific Gas & Electric Company. During the period since you went back there in the '20s, and continuing down to the present date, have you done work for other than the Pacific Gas & Electric Company?

A. Yes.

Q. Would you relate any of them particularly with relation to tunnel work?

A. I have made estimates on a number of tunnels for contractors. One of those was an estimate for the Owyhee Tunnel, I believe, in Idaho, on the Owyhee Irrigation Project, which involved about four miles of tunnel work, two miles of about 16-foot size and two miles of smaller tunnel of about 8-foot size, largely through volcanic formations.

Q. What year was that, approximately?

A. That was about five or six years ago. I have not the exact years in mind.

Q. What did you do with that? Did you estimate that for the contractor?

A. I made a detailed estimate of the time required to complete the job, the cost, the necessary equipment, and of course, preliminarily to that I obtained such information and reached such conclusions as I considered proper of the type of ground that would be encountered and the physical conditions.

Q. Who did you do that for, what contractor?

(Testimony of Otto W. Peterson.)

A. I did that for McDonald & Kahn, contractors, of San Francisco.

Q. Did you have anything to do with the construction of the Duboce or the Sunset street railroad tunnel here in San Francisco?

A. Yes. This was along about 1926 or 1927; I was associated with the Utah Construction Company of San Francisco, and in the preparation of estimates and in the construction of the Sunset Tunnel in this city; we of course had to prepare estimates of the work, determine [1820] the method by which the tunnel would be built, and I followed through as a consultant with that company during the construction of the tunnel, until its completion, and until some claims which were incurred were settled and the entire work finished.

Q. What were the approximate dimensions in length and size of that tunnel?

A. That tunnel was about 25 feet wide, 20 feet high, being a double track railroad tunnel about 4,260 feet long, full diameter, and fully concrete lined.

Q. As I understand your remarks, you made the pre-bid estimate for the successful bidder, which was the Utah Construction Company?

A. I won't say I made it for them, I made a bid; others were associated with the firm, who also checked on the bid that we arrived at.

Q. You helped estimate? A. Yes.

(Testimony of Otto W. Peterson.)

Q. And then after the bids were in they got the job? A. Yes, and built the tunnel.

Q. What function did you perform with them after they received the award of the job?

A. I acted as an associate in the firm, a consultant in all of the work, construction, physically visited that work, usually several times a week. The other work involving tunnels was an estimate for the Boulder Dam canals. I spent about one month's time, made several trips to Boulder Dam before work started, to arrive at a determination of the conditions under which that project would be built, the method which should be followed, and worked on estimates for the building of the dam, and particularly of the excavation work for the dam, and the diversion tunnel. That work was done for the contractor, but was not low, he was next to the low bidder.

Q. In other words, the estimate that was made on that was not the estimate on which the final bid was awarded? A. No.

Q. During the same period that you have just mentioned did you have [1821] anything to do with the Wawona Tunnel?

A. Yes, I made estimates for the contractor on the Wawona Tunnel in Yosemite National Park, a highway tunnel about, I should judge, ¾ of a mile in length, about 20 feet wide, and for the Newcastle Tunnel, another highway tunnel about 25 or 30 feet wide and about 20 feet high.

(Testimony of Otto W. Peterson.)

Q. Where is that located?

A. The Newcastle Tunnel is located in Placer County adjacent to the town of Newcastle; it is about 1000 feet in length, of the dimensions given, largely timbered, and also was estimated for a contractor who was not the low bidder.

Q. How about the Hetch Hetchy tunnels?

A. I made estimates for the completion of a portion of the Foothill Division of the Hetch Hetchy System, which the City of San Francisco had built by contract, that involved several miles of tunnel in the main hard rock tunnel, I believe about 12 by 14 in size. I made estimates for the work of completing the Hetch Hetchy Tunnel through the Livermore Hills, and that involved several miles of tunnel of about 12 feet, 10 to 12 feet in size in very heavy, difficult ground. The city later decided to complete that work, itself. I also made estimates for a number of tunnels on the Metropolitan Water District for at least two groups of contractors, three groups of contractors, in fact, that is, various bids were made for various contractors; altogether I estimated about ten of these contracts that came up on that work, the largest of the project or tunnels being the San Jacinto Tunnel, 13 miles in length, driven in the main from two shafts and also the sinking of two shafts from those two shafts, and from the westerly portal, the size of that tunnel being about 16 feet inside of the concrete lining. The contracting group for

(Testimony of Otto W. Peterson.)

whom I made that particular estimate proved to be the low bidder, but subsequently the district, in working out a supplementary contract, required conditions which they did not desire to meet, so they did not go through with the construction. [1822]

Q. So you had nothing to do with the construction?

A. I had nothing to do with the actual construction of the work, although I visited the tunnel during the period of its construction, as well as other tunnels in the Metropolitan District. I also made an estimate on the Yerba Buena Island tunnel connected with the San Francisco Oakland Bay Bridge.

Q. The same as Goat Island tunnel?

A. Commonly called the Goat Island Tunnel. I believe that in the main covers the tunnels. There were probably four or five others that I have not mentioned.

Q. Did you have anything to do with any tunnels in connection with San Gabriel No. 1 dam?

A. Yes, there were tunnels connected with San Gabriel No. 1 and 2 dams, those dams being built for the Los Angeles flood control district, also dams built for the City of San Diego involving diversion tunnels. Those tunnels were generally 1000 to a quarter of a mile in length and were about 20 to 30 feet in size. I did not actively participate in the construction work which was carried on subsequently. In connection with and along the same lines I advised the contractor on San Gabriel No. 1 dam, a

(Testimony of Otto W. Peterson.)

large structure, on methods to be followed by him in quarrying and shooting operations in the production of rock for the building of San Gabriel No. 1 dam.

Q. Have you ever been called in to umpire or to arbitrate engineering controversies?

Mr. Wittschen: I object to that as immaterial.

Mr. Smith: I just want to show he has also exercised that function.

The Court: Do you know of anybody that has covered the territory that you have?

A. I guess there are others, I imagine there are others.

Q. I did not ask for your imagination. I asked if you knew of [1823] anybody.

A. I don't know of anybody who has covered as wide a geographical area.

The Court: We will take an adjournment now until tomorrow morning at ten o'clock.

(An adjournment was here taken until tomorrow, Thursday, May 26, 1938, at ten o'clock a.m.)

[1824]

(Testimony of Otto W. Peterson.)

Thursday, May 26, 1938;
10 o'Clock A. M.

OTTO W. PETERSON,

recalled.

Direct Examination (continued)

Mr. Smith: Q. You have been present in the court during much of this trial, haven't you, Mr. Peterson? A. Yes.

Q. And you have heard about the Broadway Tunnels that have been discussed here?

A. Yes, sir.

Q. You have heard or read the testimony of all the witnesses? A. Yes, sir.

Q. When did you first hear of the Broadway Tunnels, Mr. Peterson?

A. In the spring of 1934.

Q. Did you visit the site of the Broadway Tunnels at that time, and thereafter?

A. My first visit was in the summer of 1934.

Q. Was construction work in progress at that time? A. Yes, sir.

Q. Upon how many occasions did you visit the Broadway Tunnels after that first visit, approximately? A. About fifty times.

Q. Did those visits occur more or less frequently, commencing with the summer of 1934?

A. Yes, sir.

Q. Referring to the times when you first went over there, will you state, in general, what you ob-

(Testimony of Otto W. Peterson.)

served of the operations of the Contractor upon those visits in the summer of 1934?

A. Starting with my first visit?

Q. Yes, commencing with your first visit, just briefly describe the work that was being done by the Contractor and the problems he was dealing with.

A. My first visit was made July 21st. I happen to remember the first date. That was July 21, 1934.

Q. Have you made a memorandum, as nearly as you can from your records, of the dates when you visited there?

A. Yes, I made a [1825] brief summary of those dates. The first visit was July 21, 1934, at which time the Contractor was excavating the open cut at the west portal. At that time, the Contractor was having difficulty with the overbreak on the slopes of the cut, and he wished my advice on what he should do in the way of further removal of the material, or just at what point I thought he should discontinue that sloping, or excavation on the slopes; and this was being done with a power shovel and the material—they were endeavoring to hold the material on the slope of one-half foot vertical to one horizontal,—what we call a "half to one slope"; and it was very apparent that that slope was too steep and that it was necessary to excavate back to approximately one to one slope, to make the banks safe for the workmen below and for the equipment working in the area below those banks.

(Testimony of Otto W. Peterson.)

I observed the conditions. The open cut excavation had been substantially completed at that time. I next visited the site of the west portal on the 5th of August, 1934. They had done considerable sloping in the intervening three weeks—two to three weeks; but the banks were still unstable in places, and they were still excavating to make the banks safer; and I recall that. These visits, other than the first visit, were purely personal; in fact, the first one was a personal visit. I was asked by one of the contracting firms to go up with him and take a look at the portal at the time of the first visit.

Q. How long did you stay on that occasion?

A. I was there probably two hours.

Q. It was all outside work that was in progress?

A. All outside work at that time. I again went up to the tunnel on August 11th or 12th.

Q. 1934?

A. 1934. I might refer to this list of dates here [1826] if I may be permitted to do that.

Mr. Smith: I presume there is no objection to him referring to that list of dates.

The Witness: A. I went up again on September 2nd. I frequently went up there on Sunday mornings or on Saturdays, to make these personal visits; and, at that time, it is my recollection they had discontinued entirely the excavation of the slopes and had started the first drift work into the south tunnel.

(Testimony of Otto W. Peterson.)

I visited there with Mr. Larson some time. He was superintendent in charge of the tunnel work. I then went over to the office, and looked over the plans,—some of the plans,—to get a general idea of the project, with Mr. Fontaine, the manager, and Mr. Orselli, the engineer for the Contractor, who had formerly worked for me. That was about the first time that I looked over the plans for this tunnel in any detail, although I knew, in a general way, what they proposed to do.

Q. Did you examine the specifications at the same time?

A. No— Well, just in a preliminary way; just got a general idea at that time what the nature of the plan was, and the nature of the job, so far as I could observe.

I again visited the tunnel on October 14th,—which was Sunday,—with Mr. Sedgewick, a geologist from Southern California, who happened to be visiting with me at the time; and, on that visit, I recall that the drifts had advanced probably 40 feet or so into the south bore particularly, and that they were in very heavy ground. They had done some concrete work in the meantime for the west portal structure, and were bracing the portals of this tunnel against that structure. They were also finding it necessary to use some intermediate sets and braces in the drifts, to hold the ground; and, [1827] generally, it was heavy, difficult ground to hold.

(Testimony of Otto W. Peterson.)

On that visit, we went into the drifts; looked them over quite thoroughly and looked over the ground at the portal, and rode around the area surrounding the tunnel.

Q. Did you observe the Contractor's methods and workmanship on that visit? A. Yes.

Q. And upon your preceding visits?

A. Yes, on all of these visits I did that. I also visited with Mr. Larson, whom I had known for some years, and was very much interested in his problems and in discussing his problems with him.

The next visit I made was on December 23, 1934. It was something over two months later. At that time, they had completed the excavation of these circumferential drifts, and had concreted about 95 feet of both tunnels, and were waiting for the time for the concrete to set,—the time they would be permitted to remove the forms before they could advance further the tunnel driving.

Q. The forward excavation was not in progress at that time?

A. No; the forward excavation was not in progress. I think, in fact, on that particular visit, Mr. Larson was away for a short time.

On January 19, 1935, about a month later, I visited the tunnel and spent a good part of the forenoon there visiting with Mr. Larson, who was then in charge of the north tunnel, and Mr. Whitmire, who was in charge of the south tunnel; and, at that time, they were advancing the drifts, driving two

(Testimony of Otto W. Peterson.)

bottom drifts forward on each side of the south tunnel; and Mr. Larson was following the wall plate system. Whitmire had two bottom drifts, as I recall, on the south tunnel, and top heading; and Larson was using the wall plate and top heading method. They had gone about some 90 feet [1828] further, I think, ahead of the concrete lining.

Q. That is, ahead of what has been testified to here as the west portal section?

A. Yes. The ground in the south tunnel was heavy and broken. In the north tunnel, it was drier, but not good supporting ground. They were using heavy timbers in both the tunnels.

My next visit was on March 24th, about two months later, on a Sunday morning. They had carried the excavation possibly another 100 feet or so further. I do not remember the exact amount. They were in some better ground, although the conditions were still difficult,—quite difficult,—in the south tunnel; and it was moderately difficult in the north tunnel.

Q. Did you observe the timbering work that was being done by the Contractor?

A. Yes. I observed the timbering at that time. I believe it was about at that time that I had a discussion or a talk with Mr. Price. He wanted to know what advice I might offer him, and I cautioned him particularly—

Mr. Wittschen: I don't think conversations between the witness and Mr. Price are admissible.

(Testimony of Otto W. Peterson.)

Mr. Smith: No.

Q. Just confine it to your observations.

A. I observed the timber work being done. They were timbering in what would be considered heavy ground, and were using heavy timber supports to hold it.

My next visit was, I believe, on April 24th, or May 24th—I have so many dates here—

Mr. Smith: What was the date of the last visit the witness mentioned, Mr. Reporter?

(Record read.)

A. On April 14th, I again visited the tunnel on a Sunday morning, [1829] and went over the work with Mr. Larson and Mr. Whitmire, in a personal way.

Q. Had you known Mr. Whitmire before?

A. Yes; I had known Mr. Whitemire for a number of years. He was, at one time, superintendent for the San Joaquin Light and Power Company on one of their tunnel projects, and for a number of years was the tunnel superintendent for the Southern California Company on an extensive program of tunnel work in Big Creek on the headwaters of the San Joaquin River, and also on a tunnel for the Utah Construction Company; possibly Bechtel was associated in the job; it was on the summit of the Sierras. On that visit, Whitmire was in ground that required breastboarding on the south drift, particularly heavy ground; and I don't believe there was any breastboarding elsewhere but the other

(Testimony of Otto W. Peterson.)

drifts generally were in rather heavy ground. It was all timbered tunnel.

The next visit was several months later, on August 5th.

Mr. Tinning: Q. Mr. Peterson, a few moments ago I thought you said May 24th?

A. No; April 14th and then August 5th.

I visited the tunnel late in the afternoon and in the evening with Mr. S. D. Bechtel and Mr. Phillips. I accompanied them and looked over all the headings of the tunnels quite thoroughly; and, at that time, I observed they had passed through some ground that was very difficult, and some portions that were more favorable, all timbered, and were in the vicinity, or had just passed the first cross adit, and were in quite heavy ground in the forward end of the tunnel; in fact, the driving at that time was in heavier ground than in some of that which they had passed through, considerably heavier ground than that which intervened.

Mr. Smith: Q. That was just east of the first cross adit? A. Yes. [1830]

Q. Or about at that location?

A. Yes. I again made a visit to the tunnel on Sunday, August 11th, in the afternoon, with Mr. S. D. Bechtel and Edgar Kaiser. All of these were personal visits. I observed the conditions at the headings and in the tunnels generally, and the ground was becoming quite heavy and quite difficult in the forward end of the tunnel; and, at that

(Testimony of Otto W. Peterson.)

time, they were also concreting, particularly concreting the footings in the sides of the tunnels; were excavating the footing trench and some of the concrete work of the arch was in progress. They had their steel forms in, and, I believe, had done some concrete work, had got it under way some weeks previously.

The next visit was on the night of August 28th, the night of the cave-in, in the north tunnel. I was asked then to go and observe the conditions and see what I might offer in regard to the problem that the Contractor had to deal with. I spent several hours looking over the site of the cave-in, both from the exposure toward the west portal, and also by going around through the cross adit and observing the conditions at the east portal. I also looked over the headings of the two tunnels, generally; and attended a safety meeting which Mr. Fry, secretary of the California Industrial Accident Commission, asked me to attend; and I was asked by Mr.——

Q. I think rather than secretary he was in charge of safety?

A. He was the manager, I assume. He is in charge of safety work for the Commission; that is, whether he is the manager or the superintendent, I don't know just what his exact title is. I returned to the tunnel the following morning, August 29th, and went in and observed conditions again, to attend another safety meeting, and spent the entire forenoon there. I believe that it was in the after-

(Testimony of Otto W. Peterson.)

noon of that day that I was asked to go to the office— Shall I stay right with the visits to the tunnels, or shall I state what occurred?

Q. No; state what you did.

A. That afternoon, I was asked to go with members of the Six Companies and their engineers to the Highway District office for a meeting, which I did; and, at that meeting, I—

Q. Who was present at the meeting?

A. There were quite a number who were present. There was Mr. Kaiser and Mr. Bechtel, Mr. Barlow of the Utah Construction Company, Mr. Hackley, Mr. Tibbitts, Mr. Phillips, Mr. Price, Mr. S. D. Bechtel, and there we met Mr. Boggs, Mr. Lippincott,—who had just come up from Los Angeles, as an engineer for the District,—and Mr. D. W. Albert, who had been retained by the District; Mr. Barclay, the assistant to Mr. Boggs; I believe that is about all who were present. There were quite a number there.

Q. What was the nature of the conference, engineering or—

A. Yes, it was essentially an engineering conference to try to reach some decision as to what should be done to meet with the conditions that had been encountered in the tunnels, and particularly in the south tunnel in the area of the cave-in, and with the problems generally in the materials that had been encountered.

(Testimony of Otto W. Peterson.)

Mr. Alexander: Q. Would you give me the date of that meeting, again?

A. The date of that meeting was the 29th of August.

Mr. Wittschen: I think he said the south tunnel; he meant the north tunnel.

The Witness: The cave-in was in the north tunnel,—I beg your pardon,—and about 250 feet, as has been stated, from the west portal. The outcome of the meeting was that it was suggested there should be engineering representation on the part of the District and by the Contractor to see what could be done to get at the problems; and Mr. Lippincott made the suggestion— [1832]

Mr. Wittschen: Just a moment. He was not asked for any conversations.

Mr. Smith: Not yet. No.

Q. What did Mr. Boggs say at that time, if anything, about—

Mr. Wittschen: Objected to as immaterial and not proving any issue in the case.

The Court: I will allow it.

Mr. Wittschen: Exception.

The Witness: A. Mr. Lippincott, did you say?

Mr. Smith: Q. No; Mr. Boggs.

A. Mr. Boggs, I think, stated that the plan that had been proposed by one of the consultants of the District was acceptable to him, and that we should proceed in accordance with that plan.

Q. What was that plan?

(Testimony of Otto W. Peterson.)

A. That plan was one suggested by Mr. Lippincott, that he and a party that he might wish to take with him and myself, representing the Contractor, should go up to the tunnels, look over conditions on the ground, and decide what was best to do in dealing with the problem at that place; and that was agreed to by Mr. Bechtel and Mr. Kaiser, representing the Six Companies, and Mr. Boggs, representing the District; so we went out.

Q. Who went out?

A. Mr. Lippincott, Mr. Albert, Mr. Barclay, Mr. Bogg's assistant and myself, went to the tunnel and went through the various points of work and observed again the status of the work, to proceed with the problem of deciding what was the proper thing to do.

Q. Was anything decided on between the District representatives and yourself?

A. Nothing——

Mr. Wittschen: Just a moment. I want to interpose an objection.

The Court: There was nothing done.

Mr. Wittschen: There was nothing done; so there is no objection. [1833]

The Witness: That was the main purpose: to get the facts as nearly as we could; to determine the physical conditions, which we did; exchange views and make observations. That was the main thing accomplished on that date. There were considerable conversations.

(Testimony of Otto W. Peterson.)

Mr. Wittschen: I think the question has been answered.

Mr. Smith: Q. Just recite what next occurred, —what you next did; what you observed at the tunnel, or in connection with what you started out to do.

A. Well, we observed——

Mr. Wittschen: Pardon me. If you are calling for a conversation, will you ask for it so I may interpose an objection?

Mr. Smith: Yes. I asked him what was done.

The Witness: We observed that the timbers— We observed there was a considerable amount of footing trench open that they were actively engaged——

The Court: Q. You say "we"?

A. I observed; pardon me. I believe "we" is correct; but I observed there was considerable footing trench opened,—about 900 feet; and they were actively proceeding with the concreting of that trench; that the timbers had moved into the concrete section in a considerable portion of the tunnel, particularly in the heavy ground,—moved somewhat in and downward; and we observed the places where the ground was heaviest and where the timbers, the timber movement, was the heaviest; and it was my observation that the timbers adjacent to the west portal just forward of the concrete that had been poured had moved in just subsequent to the time that that portion of the tunnel,—the two

(Testimony of Otto W. Peterson.)

bores,—had been driven, and had remained substantially stationary since that time; that the timber forward of that was generally clear of the neat concrete section except for two local areas in the north tunnel; the greatest difficulties being encountered were in the vicinity of the [1834] first cross adit and forward of that where they were in the so-called cherts formation.

Q. In your observations about the timber movement just east of the installed concrete, you made that observation on earlier visits, I take it.

A. Yes. I had looked over that rather critically, and I had been observing that from the time of my first visit. [1835]

Q. What day was that?

A. That was August 31. I remained home the entire morning.

Q. This was all in 1935?

A. 1935. I remained home that entire morning and looked over the plans and specifications with particular reference to the tunnel construction and the geological report. The afternoon of that same day, about two o'clock, I went to the tunnel, to look over the tunnel again to see how the work was progressing, and I was to see Mr. James Sanborn, an engineer who had been called out from New York by the Six Companies, to act as a consultant, to go over the job, and I spent a good part of the afternoon in going over, going over thoroughly again with Mr. Sanborn the job, and again observed

(Testimony of Otto W. Peterson.)

the tunnel conditions. On the next day, Sunday, September 1, I again went over the tunnel during the forenoon with Mr. Sanborn, looking at the timbering and ground conditions, and I observed on that visit a group of the district engineers, Mr. Lippincott, Mr. Van Norman, also an old friend of mine, Mr. Boggs, and Professor Derleth, who were consultants for the District, retained by Mr. Boggs, and at 3:20 we looked over conditions together to some extent, that is, I did with the consultants of the District, and in the afternoon of that same day I went to the home of Mr. Derleth and there consulted further with the District's consultants, Mr. Lippincott and Mr. Van Norman and Professor Derleth—Mr. Boggs was also present—on the problem of what should be done to concrete those portions of the tunnel that were then excavated and unlined. I might state that on or about, at the time of my visit on August 28th, all excavation of the tunnel had been stopped and that only concrete work and timbering work was then in progress.

Mr. Wittschen: You asked him what he had seen in the tunnel and that is what he was answering.

Mr. Smith: No, I asked him what he did. [1836]

A. On August 30, on the afternoon of August 30, following up this conversation with the consultants of the District, I went to the Hotel Oakland and there consulted with Mr. Lippincott, and

(Testimony of Otto W. Peterson.)

I believe it was there—it might have been at Professor Derleth's house—there are so many visits—I started in the discussion as to what we might do in making plans with a view of working out a plan initially of permitting the timber to encroach into the concrete section with a view of minimizing the amount of timber removal that might be done, and accomplish the concreting of the tunnel; this same subject was followed up at the time of this visit on September 2nd with the consultants of the District. It was realized—it was my conclusion——

Mr. Tinning: Just a moment, we object to that.

A. I will be glad to get this in in the proper manner.

Mr. Wittschen: The Court will determine what is proper.

The Court: I think the witness is doing the best he can. However, his conclusion at this time may go out.

A. While we were working——

Mr. Wittschen: I submit there is no question pending before the witness.

Mr. Smith: He had been at Dean Derleth's house and he has told us of the meeting at the hotel.

The Court: Proceed.

Mr. Smith: Q. What was the conclusion, in sum and substance, that was reached at the meeting that you had with Mr. Boggs and the consultants of the District at Dean Derleth's house?

(Testimony of Otto W. Peterson.)

Mr. Wittschen: Objected to as immaterial, that matter has already been concluded by the letters which are in evidence to the effect that the section would be dropped 10 inches without cost to the District. [1837]

The Court: Was that the result reached?

A. The preliminary steps finally led up to that arrangement.

Q. All right, proceed from there on.

Mr. Smith: The only thing about that is, the testimony would show in answer to that question that these engineers agreed that this was the thing to do, including the engineer for the District, Mr. Boggs, as early as this date, which was September—was it the 1st or 2nd? A. September 2nd.

Mr. Smith: Mr. Boggs concurred and the District never permitted it to be done until September 28th, and did not give formal approval to it until November, thereby delaying the contractor in the starting ahead of the doing of the thing that they did finally authorize on their own application to be done.

Mr. Wittschen: The letter is in evidence that the District gave this formal approval at the start of it. It is also in evidence without contradiction that they went right ahead and dropped the section and where the delay occurred was in order to get the P.W.A. approval, but pending that approval the contractor did not stop, and that approval came——

(Testimony of Otto W. Peterson.)

Mr. Smith: The fact is the evidence does not show what counsel says. There was never any permission given under which the contractor, by oral permission or otherwise, sought to lower or did lower the arch or change the design of the concrete section until after the last week in September.

Mr. Tinning: On September 24th.

Mr. Smith: In other words, there was no work done until after September 24, so there would be a delay between this date when the District should have authorized it and September 24.

The Court: You are assuming a fact not in evidence, namely, that the District authorized it. The Government was the one. [1838]

Mr. Smith: The Government was not a party to the contract. There is nothing said in the contract about the authority of the P.W.A. to approve or disapprove any design of the structure.

The Court: All right, let us clear that up. What was the purpose of getting that approval?

Mr. Wittschen: The P.W.A. had put a million dollars into the work, they approved the plans and specifications, and your Honor will recall that all through this, even Mr. Bechtel, when he testified, stated it was necessary to get their approval for working conditions, it was necessary to get their approval, and one of the witnesses has testified that they had inspectors on the job, who followed the job. This lowering of the tunnel about ten inches was a material change in the plans. The testimony

(Testimony of Otto W. Peterson.)

is in that the P.W.A. approval would have to be forthcoming, the Industrial Accident Commission approval had to be forthcoming, because they ordered all work stopped; so when the Industrial Accident Commission approved the change, whatever the date was, I think it was September 4, they went right ahead, they did not wait until the formal approval came from the Government; as soon as the formal approval came from the Government, or sometime thereafter, Boggs gave them formal approval, but in the meantime just as soon as the Industrial Accident Commission permitted it they went right ahead and were not delayed.

The Court: All of which this witness knows very little about. Let us get through with this witness.

Mr. Smith: May it please the Court, I want to state that the testimony would show if the question be permitted that Mr. Boggs stated that it was the proper thing to do at this particular time.

The Court: Proceed.

A. I again visited the tunnel on September 4th, on which date I had been given formal authority by the Six Companies to handle all [1839] matters with the District, any problem that might come up affecting engineering and the procedure to be followed at the tunnel in carrying forward the tunnel work.

The Court: September 4, 1935? A. Yes.

(Testimony of Otto W. Peterson.)

Mr. Smith: Q. Was your authority so given communicated to Mr. Boggs by you?

A. Yes, communicated to Mr. Boggs, and to both consultants, whom I contacted. On September 5 I again visited the tunnel and decided that the situation was sufficiently serious so that we should proceed more energetically with the concrete lining. We were without a plan under which we could deal with these areas in which the timber had encroached into the tunnel, and in order to proceed we had to make a decision, and since the decision was not forthcoming from the District I took the initiative and told Mr. Boggs that we were going to proceed with the building of the tunnel of the same size at a slightly lower grade, with the arch of the tunnel lower six inches, that we had to have some plan to proceed with, and we would take our chances and go ahead and proceed with this plan, and I told him that we would start to change our forms and pour.

Mr. Smith: Q. You mean by "forms" the steel forms?

A. Yes, the steel forms, because the work was not going ahead with enough force and enough speed to get the work done as rapidly as it could be done if we had some definite plan to work to. And I called upon Mr. Boggs to let him know what I proposed to do, and he said that he did not approve of that plan. So, shortly after, I called him up again and asked him if he disapproved of the plan and he said that he did disapprove of it very much, and

(Testimony of Otto W. Peterson.)

furthermore was sending out a desist letter, which was received that evening, and in the face of that notice we discontinued all work in that portion of the tunnel where the trimming of the timbers was so great [1840] as to be hazardous, or the moving of the timbers was too serious to be warranted, and confined our operations only to those portions which could be concreted without serious menace to the workmen and to the structure. On the 6th of September Mr. Boggs called me about 5 o'clock p.m. and said he would like to see me. I called at his office the following morning, September 7th, and had a discussion with him, which lasted from 9 o'clock in the morning until sometime after noon, after 12 o'clock noon.

The Court: Q. Did you go to lunch together?

A. I think we went to lunch together, yes, very good friends. There were present at the meeting Mr. Boggs, I think Mr. Earl, another consultant whom I had known for many years.

Mr. Smith: Q. A consultant for whom?

A. A consultant for the District.

Q. When you say "consultant" you mean consulting engineer?

A. Consulting engineer, yes; Mr. Sweetser, an engineer of the Bureau of Public Roads, representing the P.W.A., I believe it was, Mr. Barclay, Mr. Boggs' assistant, and I believe that was about all. I believe before the others came into the room

(Testimony of Otto W. Peterson.)

either on that day or the next day Mr. Boggs talked to me about the problem of the tunnel and made the statement that he was sorry that I did not go ahead with the concreting, that he thought I would ignore the letter and go ahead.

Mr. Wittschen: The witness is not answering the question.

Mr. Smith: The witness apparently is giving his best recollection. He is trying to tell what happened.

Mr. Wittschen: But I would like to have him asked a question. He was not asked anything like this.

Mr. Smith: Q. Proceed and state what you next did. Had you concluded the discussion at that meeting that you had testified to with Mr. Boggs? [1841]

A. We had quite a full discussion—

Q. This is the same meeting?

A. Yes, of September 7.

Q. Was Mr. Boggs present all the time?

A. Yes, he was present; there was quite a full discussion of the conditions of the tunnel and of the things that we could or should do to get the bores fully lined, and Mr. Boggs expressed—I will keep away from that.

Q. What was said?

A. Mr. Boggs expressed a fully cooperative attitude to allow for—he said that he would consider the encroachment, moderate encroachment of the timbers into the tunnel, provided the plan proved feasible on full check and investigation, and we

(Testimony of Otto W. Peterson.)

realized at that time that we had—

Mr. Wittschen: Just a minute. State what was said.

Mr. Smith: Counsel wants you to limit yourself to the sum and substance of what was said by you and Mr. Boggs.

The Court: What you realized, would be a conclusion.

A. I stated that, the conclusion reached by Mr. Boggs and myself—

Mr. Wittschen: What you said and what he said.

Mr. Smith: Q. State the sum and substance.

A. I said we needed to move up with more decision—we seemed to know—we knew what should be done, or approximately what should be done, and it seemed possible to arrive at a decision, but in this case contrary to most others it was difficult, apparently, unusually difficult for Mr. Boggs—Mr. Boggs stated that this was a problem on which he could not proceed directly with an independent decision on the modifications that were necessary for the lining of these tunnels, to meet the conditions which had been encountered.

The Court: Would that change the contract?

A. Not necessarily, this particular thing, so far as the actual concrete lining was concerned; we were trying to work out a method to build the lining, itself, so far the lining itself, was concerned, at a little [1842] different grade from the theoretical position.

(Testimony of Otto W. Peterson.)

Q. Undoubtedly you had in mind the plans and specifications? A. Yes.

Q. That was a departure from them, was it?

A. It was a departure from the plans and specifications strictly and technically.

Q. Possibly Mr. Tinning was making the decision.

A. That became more evident as we proceeded; he was in fact the man who made the decision.

Mr. Wittschen: I ask that that go out.

The Court: That may go out.

A. It was very evident that we needed somebody who could make a decision.

Mr. Wittschen: I ask that that go out and I ask that the witness answer the question.

The Court: Under our court procedure we have the same difficulty that you get into in the engineering field. Under the rule they are entitled to proceed under question and answer so that they may make their objection, and let us try to conform to that rule.

Mr. Smith: Q. Have you concluded your statement of what was said at that particular conversation between you and Mr. Boggs, in sum and substance? If not, give the balance of what was said by you or by him?

A. Mr. Boggs said that he would not consider any plan of arbitration, at least at this time.

Q. Is that all on that day?

(Testimony of Otto W. Peterson.)

A. That was the progress accomplished; nothing was done in the way of a decision.

Mr. Wittschen: The question has been answered. Was that all the conversation?

A. That was not all the conversation.

Q. That is what he asked you.

Mr. Smith: Q. If you have anything more to add to it please add to it, tell us the sum and substance of it.

A. Between Mr. Boggs and myself the sum and substance of the thing [1843] was that Mr. Boggs said that he would continue to study the problem; I had proposed to him a plan of lowering the arch six inches and bringing in the sides of the tunnel—of lowering the arch, of lowering the entire tunnel lining six inches, still giving adequate roadway space and get the tunnel built, and that was the tentative thing under consideration at that time. Mr. Boggs said that he was not going to, that he did not accept that recommendation, but would take it under consideration and give it further thought. On September 9—

Mr. Wittschen: Pardon me, that question has been answered. Now he is going to another conversation.

Mr. Smith: I submit the witness is trying to be fair.

Q. Had you finished that day? A. Yes.

Q. When was the next occasion that you visited the tunnel or had a meeting with Mr. Boggs and his consultants or assistant engineers?

(Testimony of Otto W. Peterson.)

A. Two days after that I again—

Q. That would be what date?

A September 9, 1935, at 9 a.m. I went to Mr. Boggs' office and there, in the presence of Mr. Sweetser, Mr. Earl and Mr. Barclay, we further discussed the matter of a plan for the concreting of these tunnels. No conclusion was reached.

Q. So there was nothing of any importance?

A. Nothing of any particular importance except a great amount of conversation.

Q. Did you go to the tunnels that day?

A. Not that day.

Q. What did you next do by way of activities on the same subject?

A. On the next day, September 10, I went to the tunnel at 7 o'clock in the morning and there had a drawing made showing the tunnel sections with the roof line lowered 10 inches, which was the proposed modification, which I took to Mr. Boggs' office in the same forenoon together with a memorandum which I had written, making a definite proposal for that change in the portions of the tunnel [1844] which could only—making the proposal that that sketch be used in those portions of the tunnel where the timber had encroached into the theoretical concrete lining to such an extent that it was hazardous to hew the timbers sufficiently or to reset the timbers with safety to the workmen, and presented that as a definite proposal to Mr. Boggs.

Q. What did he say?

(Testimony of Otto W. Peterson.)

A. I asked Mr. Boggs if he would not agree to that proposal. I said that the contractor would do the particular work involved in the placing of this concrete section, together with the immediate additional concrete that would be required between this theoretical section and the timber, so far as that particular work was concerned we would do that at the same cost that the theoretical section called for in the plans, or at the same price, or without extra cost, as a substitute for the theoretical section called for in the plans. This, however, did not involve any question as to the claims or charges or costs for the excavation and timbering necessary for building either the theoretical section or this modified section in these particular situations where the modified plan would be used, and I urged Mr. Boggs to agree that we should proceed with this plan, and Mr. Boggs read what I had written, and in the main agreed with the proposal; he suggested that we should also include in this a statement that the Six Companies would modify the hanger rods and make some adjustment in the ventilating chamber which were within the theoretical section of this concrete lining, and I said that I anticipated including this work also and that that as well would be done as a substitute for the theoretical section shown in the plans.

Q. By "theoretical section" you mean the designed section?

A. The designed section.

(Testimony of Otto W. Peterson.)

Q. At the exact location shown?

A. At the exact location shown [1845] in the plans.

Q. Does that conclude your meeting of that day, or have you anything to add to that?

A. Mr. Boggs stated that he was not prepared to give me an answer, that while the plan appeared to have good merit and in general was in accord with his views, he would first find it necessary to consult with the officials of the District, and with the P.W.A., and Bureau of Roads, State Highway District of California, and he agreed that he would proceed immediately to do that. [1846]

(After Recess)

Mr. Smith: Q. Had you concluded? I have forgotten exactly where we were. Had you concluded the meeting on September 10th that you were discussing? A. No, sir.

Q. Was anything further said or exchanged between you and Mr. Boggs at that meeting?

A. In urging on Mr. Boggs that we reach a decision along the lines of this modification, I told him what had been done by Mr. O'Shaughnessy in the building of the Sunset Tunnel in San Francisco, where the contractor went through 300 feet of heavy ground some little distance in from the east portal. We went through this particular area of heavy ground without any unusual occurrences, and shortly after we had gone through the ground, the tun-

(Testimony of Otto W. Peterson.)

nel at that place, the timbers at that place settled a total of 20 inches; the timbers had been placed above grade, but there was a very decided movement, and it was entirely impracticable and unsafe to attempt to reexcavate that tunnel at that place and reset the timbers.

We conferred with Mr. Bartel, who was Mr. O'Shaughnessy's representative on the job, and Mr. Callahan, in Mr. O'Shaughnessy's office.

Mr. Wittschen: Q. Will you tell us what you told Mr. Boggs?

A. I told Mr. Boggs that we consulted with Mr. Bartel and Mr. Callahan, and, inside of about two days' time, we had authorization from Mr. O'Shaughnessy to lower the grade of the tunnel about 10 inches; a slight change was made in the roadbed and a slight change in the railroad grade; that we were immediately at work putting in bracing and concrete rings and proceeded with the concreting of this difficult section; I told Mr. Boggs that I thought that this was, along with other experiences where similar things had been done in tunnels in the way of changing grades as long as the structural strength was retained, a thing which chief engineers frequently have to do, and I thought that he should act on his own responsibility and [1847] give us authority to go ahead. Mr. Boggs said that he thought this precedent would be very helpful to him and he would be very glad to have me give him a full statement of it; which I did, in a letter dated

(Testimony of Otto W. Peterson.)

two days later, giving him the information from the City's official report on this particular heavy section in the Sunset Tunnel.

Mr. Smith: Q. You are referring to Mr. O'Shaughnessy, the San Francisco City Engineer?

A. Yes, Mr. O'Shaughnessy.

Q. Mr. O'Shaughnessy had the same function on the Sunset Tunnel as Mr. Boggs did on the Broadway?

A. Yes. Mr. O'Shaughnessy was the City Engineer, the engineering official,—the executive; and Mr. Boggs was in a similar situation.

Mr. Tinning: Mr. Smith, I don't want to interrupt your examination, but the City Engineer of San Francisco, under the Charter provisions, is entirely different from a legal situation than a district engineer of this District.

Mr. Wittschen: They had no PWA, either.

Mr. Tinning: They did not have the same functions. They might have the same engineering functions; so I am going to object to the question, and ask that the answer go out, on the ground it does not state the facts.

Mr. Smith: The clauses in the contract of the District for the construction of the Broadway Tunnel and the clauses in a similar contract for the construction of Sunset Tunnel confer similar powers on the Engineer; and I take it that is a matter of legal argument. I was just identifying that it was Mr. O'Shaughnessy of San Francisco.

(Testimony of Otto W. Peterson.)

Mr. Tinning: The only objection, Mr. Smith, that I have is it was an attempt to go beyond his engineering functions. I wanted to make that objection. If it is merely for the purpose you have [1848] stated, I have no objection.

Mr. Smith: No; that was solely for the purpose of identifying who Mr. O'Shaughnessy was.

The Court: Proceed.

The Witness: A. Mr. Boggs agreed that he would proceed at once in an effort to obtain approval for this section; and we parted on that day.

Mr. Smith: Q. That was September 10th. Have you concluded September 10th now?

A. Yes. On September 11th——

Q. Let me ask you a question first: Upon what occasion next did you visit the tunnel; or did you have any meeting with Mr. Boggs; and, if so, what was said, or what did you observe at the tunnel?

A. On September 11th, I had a telephone conversation with Mr. Boggs, in which he reported that he was making progress in his contacts with the Bureau of Roads and the State.

On September 12th, I visited the tunnel; went through the entire workings very carefully, and observed particularly the formations in the easterly part of the bores that were open to observation.

Q. You mean the easterly part of the west bore?

A. Yes, the easterly part of the tunnel timbers, from the west portal. I observed the ground was very seriously heavy near the extreme easterly end

(Testimony of Otto W. Peterson.)

of those tunnels, particularly from the first cross adit to the headings; and I went down to Mr. Bogg's office and again urged on him the approval of this plan which he was proceeding with in a thoroughly cooperative way. I spoke to him also, told him that in some special instances it might be difficult to clear all of the tunnel even to comply with the proposed plan of modification of dropping the roof 10 inches, but we might need some tolerance on the timbers, such as I stated to be customary in the building of tunnels, to allow [1849] some encroachment of individual timbers into the section; and he agreed that he would allow about one inch for the segment timbers encroachment or tolerances, and about two inches for the posts.

Q. Did you speak about it?

A. Yes; that was the conversation; he stated that he was agreeable to tolerances of that order, and he stated that he was making good progress with the modification, and thought that it would meet approval at an early date.

Q. Does that conclude that——

A. That concludes that date, except as to this one point: that I stated in part, I was particularly emphatic about the desire to get the worst places in the tunnel concreted at the earliest possible date; in other words, those places from the first cross adit on to the headings. We wanted to do the timber work which was preliminary to the concrete work, and all the other work, so as to speed that up. We were,

(Testimony of Otto W. Peterson.)

in the meantime, going forward with the regular concrete lining in those sections in which the driving or proposed driving did not apply.

Q. Have you concluded your comments upon that date? A. Yes.

Q. Upon what next date did you see Mr. Boggs or did you visit the tunnels?

A. I again, on September 13th, spent the entire forenoon in the tunnels, going over the details of timber position encroachment and with the formulation of plans under which we would proceed with the excavation upon obtaining approval for this modified section.

Q. Was any excavation going on at the particular time forward in the tunnel on the west end?

A. No; no excavation whatever.

Q. Except at the point of the August 28th cave-in?

A. That is all. Also, on this day, September 13th, I telephoned Mr. Boggs to find out what progress he was making in the matter of approval for the modification.

Q. Does that conclude that date?

A. Yes. [1850]

Q. What was your next experience?

A. The next was September 14th. I went to Mr. Boggs' office at 8:40 a. m., and asked him if he was not at that time ready to agree on the modification, or at least on the language of the modification, so that the proposal would be in form for quick ap-

(Testimony of Otto W. Peterson.)

proval, as long as he was authorized already to act. He stated he needed authorization; and I wished to be sure, and I told him it would be highly desirable to have a definite statement of language; and, on this occasion, or some day near this,—I think it was at this particular meeting,—Mr. Boggs showed me what his ideas of the proper language were, and stated then, as he had stated on one or two previous occasions, that he was in substantial agreement with the language that I had used, the conditions that it covered, and that he would release this; he would let me go over the final draft with him as soon as he had approval from Mr. Tinning as to the form of the statements in this paper.

Q. When he referred to the language being similar to his, or his being similar to yours, he was referring to a paper you left with him a few days before, that you mentioned?

A. Yes, a memorandum.

Q. Proceed, if there is anything further to add on that occasion that you are talking about.

A. On September 15th, the next day, in the morning, I went to the tunnel with Mr. Roy Hackley, a tunnel consultant retained by the Six Companies, to go over the tunnel supports thoroughly, and to determine what procedure we should follow in pressing forward more energetically with this work at the various places. By that time, the ground last excavated from the vicinity of the cross adit to the heading had become so heavy that it was neces-

(Testimony of Otto W. Peterson.)

sary to resort to some supplemental support, and we decided that gunite would be the most desirable supplemental, artificial support to introduce in the tunnel. [1851]

Q. I take it, you mean by "supplemental support" supplemental to the timbers which had been supporting it?

A. Yes. Gunite not only has strength in it but serves to bond timbers together. The gunite proposed was a reinforcing steel gunite. We proceeded with the making of plans for that; told the superintendent to get ready, or to proceed with that work; which was done; and quite considerable areas in the forward part of that tunnel were gunited in the next few weeks. I saw Mr. Boggs at the tunnel either—it was either on this day or the day previous. He said that our plan for the modification of this tunnel seemed to reach an unfavorable stage; that, while he himself was agreeable, there were legal complications that had developed between the attorneys of the two parties and Mr. Tinning; he said he was dejected about the situation, and that a decision was very urgent either to go ahead with the modification or go ahead with the job some way or other, with the modification preferably, or to shut the job down.

Q. Have you concluded your conversation with him on that day?

A. No. At that conversation, he told me something of the nature of what these difficulties were.

(Testimony of Otto W. Peterson.)

The conversation, if you wish me to go into that——

Q. Yes.

A. —that was the sum and substance of it: that——

The Court: Q. The lawyers got together and intervened; was that it? [1852]

Q. What was the occasion of your next visit to the tunnel?

A. On the afternoon of the next day.

Q. What date would that be?

A. September 16, I went to the tunnel with an assistant of mine, Mr. Haberkorn, who was a young construction man with a good technical knowledge as well, and on this visit we looked over the conditions in the tunnel to see what places were available for the placing of gunite, and to have him to make designs for gunite beams which would add to the strength of the tunnel. On the evening of the 16th I telephoned to Mr. Boggs about gunite in particular, and urged upon him the advantages of that type of construction, and of its superiority to concrete in strength, and told him of its uses in many other tunnels, and asked him if it would not be permitted to allow that gunite to project into the concrete sections so as to be most effectively used. Mr. Boggs said that he would consider the matter, but off-hand he questioned the advisability of permitting the gunite to project into the sections, as the steel was permitted, steel supports were permitted to project.

(Testimony of Otto W. Peterson.)

Q. Does that conclude your activities on that day?

A. That concludes that day's activities in substance.

Q. Upon what next occasion did you visit the tunnel or have any meeting with Mr. Boggs about the matter?

A. On September 19th I called at the Hotel Oakland for a meeting with Mr. Lippincott, Dean Derleth, Mr. Boggs and Mr. Barclay, and was there informed by Mr. Lippincott that——

Mr. Wittschen: Just a moment. Was Mr. Boggs present?

A. Mr. Boggs was present. And was there informed by Mr. Lippincott that the reason why the negotiations were not completed was due to the fact that the attorney for the Six Companies refused to do this work, were refusing to do this work in accordance with [1853] the plans which I had proposed; in other words, free from any claim so far as this particular piece of work was concerned, as a substitute for the designed section of concrete. I told Mr. Lippincott and the other persons that I was quite sure that he was mistaken, that I had been discussing the matter with Mr. Max Thelen, who was handling the negotiations, and that it was my understanding that the Six Companies gave full support to my proposal but that the difference had to do with extraneous work or work beyond the immediate confines of this particular concrete

(Testimony of Otto W. Peterson.)

ring as a replacement or substitute for the theoretical ring, and that we maintained our right to make claim for the excavation and the timbering which was necessary prior to the time that we placed this particular concrete, but that so far as the concrete ring, itself, was concerned, it would be built as a substitute for the other, with considerable additional amount of concrete involved without extra charge, that extra concrete being just beyond the exterior limits of this modified section and the exterior limits of the theoretical designed section. I said in my opinion that the tunnel was being built under conditions which were entirely different from those which the contractor depended upon when he took the work, conditions which were different from those which were represented, which he felt he had a right to consider a fair representation, and that I did not feel that the contractor should be asked to waive any of his claims, and Mr. Lippincott stated that he was in agreement with that position, in fact he stated that he understood me thoroughly, and apparently there was some misunderstanding which needed to be cleared up about the matter of claims and what latitude they should take.

Q. Was that the sum and substance of what occurred at the meeting at the Hotel Oakland?

A. Yes.

Q. What happened next?

A. On the next day——

Q. Which would be what date?

(Testimony of Otto W. Peterson.)

A. September 20, I had a tele- [1854] phone conversation with Mr. Boggs and Mr. Lippincott, and I told them——

Mr. Wittschen: Pardon me, just a moment. I do not object to what this witness said to Mr. Boggs, but it is obvious he could not telephone Mr. Boggs and Mr. Lippincott at the same time. If he talked with Mr. Lippincott I object to it as immaterial.

Mr. Smith: You will stipulate that Mr. Lippincott was a consultant for the District?

Mr. Wittschen: Yes, but Mr. Lippincott had no right to change the contract, and Mr. Boggs had no right, either. Will you ask about the conversations separately?

Mr. Smith: Q. What was the conversation with Mr. Boggs?

A. I telephoned to Mr. Boggs and told him that I thought that the situation was a useless one for me to continue in; that I had entered into a thing that I did not wish to enter into initially, and I had entered into it because I thought I could do something constructive, and I felt that I was wasting my time, the recommendation had been made, and when we could arrive at a point that something constructive could be done I would be ready to continue in my position with the contractor, but it was my disposition to tell the Six Companies that I was finished with this particular assignment and wished to be relieved, and he said he thought that the situation looked more hopeful, and urged me to continue on, and, substantially, I telephoned to Mr.

(Testimony of Otto W. Peterson.)

Lippincott, and he said the situation with regard to the consummation of these modifications looked more hopeful, and thought something was going to be worked out.

Q. Does that complete your statement?

A. Yes.

Q. What happened next?

A. I went to the tunnel on the next day, [1855] the 21st, and spent several hours there, and then went down to Mr. Boggs' office with Mr. Hindmarsh, and we discussed details of timber work and concrete work, and clearances, and tolerances of timber and gunite, and about this time I told Mr. Boggs—Mr. Boggs told me, or I told Mr. Boggs, that my study of the gunite proposed would not accomplish all I thought that it would in the way of a design and that I would not press that any further except as a general means of support, but that I did not press it as a full substitute for the concrete lining, but only as a construction support, supplementing the artificial timber support. In the afternoon of that day I went over the work at the east tunnel very carefully with Mr. Hindmarsh.

Q. Did you note the work there and what had been done by the contractor?

A. Yes, I observed the work, the same general ground conditions as those encountered at the west portal, although not quite so heavy.

Q. Requiring timbering support?

A. Requiring timbering support.

(Testimony of Otto W. Peterson.)

Q. What next occurred, Mr. Peterson? When did you next visit the tunnels, or meet with Mr. Boggs?

A. I visited the tunnel next day and went over——

Q. What day would that be?

A. September 2? and went over the tunnel timbering very thoroughly with Mr. Price, working up data and a graphical diagram showing the position of each of the timbers and laying the basis for the timber survey that was later made of all of the timbers in the tunnel.

Q. Which is in evidence in this case?

A. Which is in evidence in this case.

Q. Does that complete your activities for that day? A. Yes.

Q. Upon what next occasion did you visit the tunnels or see Mr. Boggs?

A. I visited the tunnels on the afternoon of the 23rd [1856] of September, the next day, taking with me Mr. Harry Scott, a tunnel superintendent whom I had obtained from Mr. Hindmarsh, the general superintendent, with a view of having Mr. Scott handle the work of square-setting that was to be done or was in progress and which was to be done to a much greater extent in the portions of the tunnel where the ground was very heavy and where something further than regular timber sets and gunite was required, and where it was clearly evi-

(Testimony of Otto W. Peterson.)

dent that it would be necessary to give this additional support.

Q. Was there any excavation in progress at this time?

A. No, no excavation in progress.

Q. Were they removing the cave-in material then?

A. They were going ahead with the removal of the cave-in, and they were going ahead with all of the concrete work in both tunnels, doing as much as could be done working energetically in the standard sections of the tunnel.

Q. You mean by standard sections where it was not necessary to make any change in the designed section? A. Yes.

Q. What next occurred?

A. On September 24th I attended a hearing of the State Accident Commission at which the question of safe procedure in the Broadway Tunnel was heard, and where it was agreed by the District and the Six Companies that substantially the same recommendation which had previously been made to lower the arc ten inches, with a view of minimizing the disturbance of timber supports should be followed.

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.)

[1857]

(Testimony of Otto W. Peterson.)

Afternoon Session

The Court: You may proceed.

OTTO W. PETERSON,

recalled.

Direct Examination (continued)

Mr. Smith: Q. Just before the luncheon recess, Mr. Peterson, you had spoken about events of the 24th of September, 1935, and, I believe, had completed your statement about that date? A. Yes.

Q. What next occurred, as far as your going through the tunnels, or meeting with Mr. Boggs, is concerned, and when?

A. My next visit to the tunnel was on October 1st, at which time all construction activity except driving the bores ahead from the west end was proceeding energetically there, with a large crew of men, especially on the square-setting work, and on the work of preparing the sections in which the lining section of the tunnel was to be placed.

Q. You mean the modified concrete section?

A. Yes, the modified concrete section.

Q. That was October 1st?

A. October 1st, yes.

Q. Have you concluded your remarks about that date? A. Yes.

Q. What next occurred, and on what date?

A. On October 2nd, I made a visit to the tunnel with Mr. Bright and Mr. Sweetser of the Bureau

(Testimony of Otto W. Peterson.)

of Public Roads, and Mr. Barclay of the Highway District also went along. We looked over the work that was in progress in preparing the tunnel for the modified section, and also some additional problems,—special problems,—where it was uncertain as to whether or not we might even have difficulty in moving a few special timbers to meet the requirements of the modified section.

Q. Were they installing the modified section by this time?

A. They were putting up the forms, and I believe they were actually pouring concrete at this time on the first portion of the modified [1858] section, by the use of wood forms. I saw Mr. Boggs at the tunnel, and spoke to him about solving additional difficulties that might arise in which it might be necessary to use a somewhat thinner substitute section than the 24 inches specified in the modified section by introducing structural steel, or by other methods which would give the required strength should that become necessary. Mr. Boggs stated that he would have these thinner sections analyzed and be prepared to make a decision if it became necessary to do so.

Q. Is that all for that date? A. Yes.

Q. What next was the date upon which you went to the tunnels or met with Mr. Boggs?

A. I had a brief visit with Mr. Boggs on the afternoon of October 5th, following a Highway Dis-

(Testimony of Otto W. Peterson.)

trict meeting; spoke to him very briefly about the same subjects that had been discussed on October 2nd.

Q. Did you go to the tunnel on that date?

A. No, sir.

Q. Either at the west or the east portals?

A. It is not my recollection that I did.

Q. Did you go to the tunnels shortly after that?

A. On October 6th, I spent the morning at the tunnels, and again saw Mr. Boggs there; but, at that time, it looked as though we would be able to accomplish all that was required in the modified section that had been accepted except for an interference of possibly two inches; and Mr. Hindmarsh, the superintendent, stated to Mr. Boggs that he thought he could get the full 24 inches, but would do so if it was at all possible to accomplish that result. I might state here I think that was fully accomplished, and that we were simply dealing with contingencies that might arise, and with a view of being prepared to meet them, if they did arise.

Q. Did you observe the work being done by the Contractor in the [1859] tunnels on that date?

A. Yes, sir. I observed the work being done at that date, particularly the work of squaresetting, on which they had quite a large organization and in which I was particularly interested.

Q. What occurred next after October 6th?

A. On October 9th, I went, with Mr. S. D. Bechtel and Mr. Boggs, to Mr. Sweetser's office, where

(Testimony of Otto W. Peterson.)

the language to be used with regard to the description of what would be done or what would be included in the modified section, the design of the modified section, was further reviewed and passed on.

Q. Where was that meeting?

A. That was at Mr. Sweetser's office, as I recall.

Q. Where is his office?

A. In San Francisco, at the office of the Bureau of Public Roads.

Q. Have you concluded your observations on that date? A. Yes.

Q. Upon what next occasion did you go to the tunnels?

A. Well, either on the 9th or the 10th; I believe it was on the 9th, I anticipated that there would be continuing problems developing in regard to the tunnels, and also I felt that we had gotten over our principal hurdle, and spoke to Mr. Boggs about the advisability of settling all of the problems between the Contractor and the District to see if it would not be possible to clear up these problems, determine the merits of the claims of the Contractor——

Mr. Wittschen: Any conversations going toward arbitration and claims would be entirely immaterial here, and could not bind the Board of Directors. That was not within the scope of Mr. Boggs' authority, and I object to anything of that kind, on the ground that they were not consummated, and, not having been consummated, they cannot be gone into.

(Testimony of Otto W. Peterson.)

Mr. Smith: If it please the Court, the testimony seems to me to be testimony that should be developed to establish what was done [1860] by the Contractor and the efforts that were being made and the delays that resulted, in general, to give the Court all the facts concerning the situation.

The Court: What delay have you in mind now?

Mr. Smith: I don't know what the answer will be.

The Court: You don't know what the answer will be?

Mr. Smith: The exact answer on this particular subject.

The Court: The exact answer. What delay have you in mind?

Mr. Smith: The Contractor was engaged in negotiations, through Mr. Peterson, with the District, in an effort to speed up the work and to arbitrate any dispute——

Mr. Wittschen: Well, arbitration of claims is not involved.

The Court: Arbitration is not in issue. It has no place in the case on the merits.

Mr. Smith: Q. Proceed, Mr. Peterson, and delineate the conversation you had, omitting reference to arbitration.

A. On my next visit—there was no particular conversation on those two dates except that which referred to arbitration,—nothing of consequence.

(Testimony of Otto W. Peterson.)

Q. What was the next occasion when you went to the tunnels?

A. My next visit was on October 13th. I spent several hours there in looking over the work carefully,—the timber work, particularly,—with Mr. Hindmarsh.

Q. What was the condition of the work at that time; was excavation in progress?

A. No. The timber work and concrete lining were the classes of work which were in progress.

Q. What was the next occasion of your visit to the tunnels?

A. On October 20th, I went over the tunnel work with Mr. Hindmarsh and Mr. Havis,—Mr. Havis of Mr. Kaiser's office,—to check over the amount of work that remained uncompleted, and to see that we had everything ordered and all plans were prepared to go ahead with [1861] excavation just as soon as the concrete was finished; reviewing the work generally.

Q. Did you observe the ground conditions in the workings at this time?

A. Yes; not so particularly on that day more than others, though.

Q. When was the occasion of your next visit to the tunnel——

A. The next visit was on the 31st of October. I went carefully through the second cross adit, and looked particularly at some of the formations that were in that area, because it gave a very good cross

(Testimony of Otto W. Peterson.)

section of the hill between the two tunnels, gave better exposures than were generally observable in the tunnels themselves; and I was particularly interested in the soft puttylike deposit that ran like a faulted gouge, and was interested in determining the extent of these deposits, and also in observing their similarity with other whitish deposits that were in evidence in the easterly part of the two bores that to that time had been excavated from the west portal. It was a type of intrusion which cut across the formation and greatly weakened the structure of the chert particularly, and I was interested in trying to determine the nature of it and what the probable extent of that might be, and the work that remained to be done.

Q. You heard the testimony of Mr. Page here the other day, I believe you said? A. Yes.

Q. Was that the same material that you mention that Mr. Page described as a diabase dike?

A. That was the same material, yes.

Q. Did you see some of that material on this particular occasion,—on October 31st,—when you were there?

A. I saw some at that time in the cross adit, and also particularly in the forward part of the headings, as they excavated from the west portal.

Q. Have you concluded your observations on that day? A. Yes. [1862]

Q. Upon what next occasion did you go to the tunnel?

(Testimony of Otto W. Peterson.)

A. I next visited the tunnel on November 2nd. Nothing of any particular import on that day, other than——

Q. Did you see Mr. Boggs on either one of these last visits you mentioned, or any occasion prior to that?

A. I visited Mr. Boggs all of the forenoon of October 31st. Our discussion had to do, in the main, with matters which are not under discussion at this time, I guess.

Q. When did you next go to the tunnels or see Mr. Boggs?

A. I saw Mr. Boggs, again, on November—Mr. Boggs and Mr. Tinning on November 1st. That was a conversation at Mr. Boggs' office.

Q. Thereafter, when was the next occasion?

A. On November 2nd, I was in the tunnel during the forenoon, looking over all work very carefully; going ahead with timber surveys and checking up on the progress,—the activities of the various crews; going over the work with the superintendent.

Q. Had excavation been resumed as yet?

A. No, sir.

Q. What was the occasion of your next visit and the date?

A. The next visit was on November 8th. I went through the slide area on that date, with Mr. Larson; and the work was pretty well along toward completion, as I recall.

Q. The next date?

(Testimony of Otto W. Peterson.)

A. I was there on the next day, also, November 9th; and again looked over the area of the first cave-in quite carefully.

Q. And they were still working there?

A. Yes.

Q. The Contractor's forces. What other work were they doing on this occasion, as you recall, in general?

A. Well, they were carrying on the concrete lining work and footing work and timber work, square-setting. [1863]

Q. What was the occasion of your next visit, or the date of it?

A. On November 17th, I made a visit and went over all of the work with the superintendent, Mr. Hindmarsh.

Q. What was the Contractor doing at that time?

A. Well, about that time, it is my recollection that he resumed tunnel driving in the south tunnel, proceeding with the side drifts and carrying that work forward. The main excavation,—the concrete had at that time advanced to a sufficient point in the south tunnel, in both tunnels, in fact, so that work could proceed,—excavation work could proceed in the south tunnel.

Q. Did you observe the methods being employed by the Contractor?

A. Yes; the bottom drift system.

Q. Were they in accord with standard tunnel practice? A. Yes.

(Testimony of Otto W. Peterson.)

Q. Upon what occasion did you next go to the tunnels?

A. Next visit was on December 11th. I went through the tunnel with Mr. Price, and checked over all of the work being done, particularly the heading work proceeding in the south tunnel.

Q. Were you at the tunnel on November 30th?

A. Yes, I was at the tunnel on November 30th, also; also went over the work with Mr. Hindmarsh, the superintendent.

Q. Did you observe the ground conditions at that time in the south tunnel?

A. Yes. The work of squaresetting and putting the tunnel in shape had been well advanced to completion. The tunnel was particularly heavy; the north tunnel, near the heading, right where the last work was completed. I noticed particularly, on this and other visits, that some of the heaviest ground in the tunnel was right over and immediately forward of the shovel where it further excavated at the toe of the core in the north tunnel; and a similar condition was—— [1864]

Q. Had the Contractor resumed excavations in the north tunnel on this date?

A. I do not recall just when he resumed excavations. It was some time in the month of December; about the middle of December, as I recall.

Q. After November 30th, or, I believe, you stated December 11th, what was the next date of a visit to the tunnels?

(Testimony of Otto W. Peterson.)

A. On December 21st I visited the tunnel headings, with Mr. Hindmarsh; and I think that at this time, as previously stated, the work of excavating was also resumed in the north tunnel headings.

Q. Did you observe the working conditions and the work that was being done by the Contractor on those visits?

A. Yes, sir; in the north tunnel, they proceeded with the wall plate drift system and top heading.

Q. Was the work being done in accordance with standard tunnel construction practices as you understand them? A. Yes, it was.

Q. What was the date of your next visit to the tunnels?

A. My next visit was on December 28th. I again went over the various headings, through the various headings and over the work with Mr. Hindmarsh. The work was actually in progress,—excavating the headings and bench and so on, in both the north and south tunnels.

Q. When did you next go to the tunnel?

A. On the 29th of December, I also went through the tunnel with Mr. Hindmarsh.

Q. And the Contractor was excavating in both tunnels by that time, as I understand it; is that correct? A. Yes.

Q. Did you observe the ground conditions encountered in the headings and the timbering methods employed by the Contractor? A. Yes.

Q. What observations did you make?

(Testimony of Otto W. Peterson.)

A. Well, the work was being carried forward in a good, workmanlike manner, with as much energy as possible.

Q. When did you next visit the tunnels?

A. My next visit was on [1865] January 25, 1936.

Q. 1936? A. 1936.

Q. All the visits you have testified to ending in December were in the preceding year?

A. Yes, sir.

Q. Now, this is 1936?

Mr. Tinning: What date was it, Mr. Smith?

The Witness: January 25th.

Mr. Smith: Q. What did you observe on that date, if anything, Mr. Peterson, as to the ground conditions and the work being done, and the manner in which it was being done?

A. Well, they were excavating in chert formation in both tunnels. There were quite a number of diabase dikes in evidence. The work was going forward as rapidly and in as workmanlike manner as possible.

Q. Did you observe any effect of the diabase dikes on the work?

A. Yes; there were places—there was very heavy ground where these dikes had cut across the formation and broken the bond overhead, or permitted these disjointed masses to slide on the lubricated diabase planes, exert pressure toward the tunnel excavation.

(Testimony of Otto W. Peterson.)

Q. Was there any trimming of timbers necessary at that time in order for the Contractor to install the concrete section as designed?

A. There was trimming of timbers required at all times. There were special places where the timber was forced in.

Q. Was there any resetting of timbers or replacement of these timbers necessary? A. Yes.

Q. Was that work proceeding at that time?

A. Well, the major part there was—— Yes, that was still going forward.

Q. Was that in the new excavating?

A. Some of it was in the new excavation, yes.

Q. How long had the timbers that were being reset, or replaced, been in place?

A. Some of those timbers had been placed just a very short [1866] time,—a week or ten days.

Q. They had moved to the extent necessary to require replacement?

A. Occasionally, yes.

Q. When was the next visit,—the occasion of your next visits, Mr. Peterson; and who was with you?

A. I next visited the tunnel on February 10th. Mr. Boggs, Mr. Lippincott, Dean Derleth and Mr. Hindmarsh, as I recall, were present in the tunnel at that time, and we looked over particularly the work of advance driving in the tunnel and the type of construction in progress.

(Testimony of Otto W. Peterson.)

Q. Did you have any conversation with Mr. Boggs at that time?

A. It is my recollection I did. [1867]

Q. Will you state what the conversation was?

Mr. Tinning: Will you have him state who was present?

Mr. Smith: I think he has stated who was present.

Q. Who was present at the conversation you mentioned—all of the gentlemen you have named?

Mr. Tinning: Who was within hearing.

A. They were all about.

Mr. Smith: Q. Who was within hearing, or do you know?

A. I don't know. I had a conversation with various ones of the party, I think several of them, but particularly with Mr. Boggs, and discussed the progress and the way the work was proceeding, and Mr. Boggs expressed approval of the way the work was being carried on, and then my recollection is Mr. Lippincott also expressed approval of the way the work was being carried on by the contractor.

Q. Does that complete your statement as to that particular day? A. Yes.

Q. Upon what occasion did you next visit the tunnels?

A. On February 15 I made a visit to the tunnel; Mr. Boggs, Dean Derleth and Mr. Van Norman were there. We looked through the tunnel work and discussed the manner in which the work was

(Testimony of Otto W. Peterson.)

being conducted and the progress, and again it is my recollection I spoke with Mr. Boggs and also Mr. Van Norman, too, if they had any criticism, or suggestion, or advice, and they expressed themselves as—expressed satisfaction with the progress and the manner in which the work was being carried forward.

Q. Were you referring in any way in what you said to the timbering methods that were employed at that time? A. Yes.

Q. The comments that were made included comments on the timbering?

A. That is what I was particularly interested in covering in the discussions. [1868]

Q. When did you next go to the tunnels, Mr. Peterson?

A. The next visit was early in the morning of February 22 of 1936.

Q. That was on the day of the cave-in of that date? A. Yes.

Q. Had you been at the spot where the cave-in occurred during your last preceding visit on February 15, which you testified to, as far as you know?

A. It is my recollection that I was in the headings, but I do not believe, I am quite certain that the main bore excavation had not been completed at the time of my visit the week previously, but that the wall plate drifts were excavated.

Q. It is your recollection that on February 15, when you were there at the spot where the cave-in

(Testimony of Otto W. Peterson.)

occurred on February 15 that the drifts were under construction?

A. That is my recollection.

Q. What did you observe concerning the February 22 cave-in as to, in your opinion, its cause?

A. I arrived while the material was still caving, and noticed it came in mainly from the area above the south wall plates, and in the arch in the north tunnel; it came in about, above the arch, some five or six feet—several feet—and developed laterally up to the south, to the sides and upwards, and kept expanding, and I noticed the type of material, there was a considerable amount of white material, that diabase, white diabase, which came down at this place in lumps of considerable size, varying from large lumps to finer products.

Q. Had the timbers been broken or snapped in the part of the cave-in as far as you observed?

A. No, the timbers were not broken, but had come in bodily; it appeared that a thrust had caused this cave-in, the thrust coming from the upward and from the south side of the arch.

Q. At what point on the line of the arch did you form the opinion the cave-in started?

A. I would roughly say a quarter of the way from the wall plate up to the crown, or just above the wall plate, [1869] and developed upward in both directions, forward and backward, as the cave expanded.

Q. It is your opinion it began—you observed and formed the opinion that it began at the first or sec-

(Testimony of Otto W. Peterson.)

ond segment above the wall plate?

A. I would say about the second segment would be the locality.

Q. That would be on the south side of the north tunnel? A. Yes.

Q. What else did you do on the day of the cave-in when you were there, if anything?

A. I observed the bulkhead which was being thrown up; I went up on the catwalk adjacent to that and viewed it from all angles as closely as I could, to observe it as much as possible.

Q. Did you return to the tunnel after February 22nd?

A. Yes, I returned the next day, on the 23rd, and looked over the area of the cave-in further. At that time the debris had come down so that one could not see as much of the area from which the cave had started, and the debris had come down sufficiently to fill the tunnel and block the area of the roof pretty generally adjacent to the cave.

Q. After February 23 did you go to the tunnel at all?

A. I went to the tunnel on February 24 and attended a Safety Commission hearing which was held on that date.

Q. You mean the Industrial Accident Commission?

A. The Industrial Accident Commission hearing.

Q. Where was that hearing held, at the tunnel?

A. It was at the tunnel, yes.

(Testimony of Otto W. Peterson.)

Q. What was the occasion of your next visit, if any, to the tunnel?

A. The next visit was on the 26th of February; I went over the tunnel work again with Mr. Hindmarsh, the superintendent.

Q. After that did you make a visit to the tunnel again, and when? [1870]

A. The next visit was on March 3, 1936, that was the last visit.

Q. You visited the tunnel during construction for the last time?

A. The last time that the Six Companies were engaged in this contract.

Q. In other words, after March 3, 1936, you did not again go to the tunnel prior to June 13: is that it? A. Yes.

Q. 1936? A. Yes.

Q. From your observation of the conditions as you saw them in the tunnel did you form an opinion as to whether or not the ground in which these tunnels were being driven was or was not self-supporting? Did you form such an opinion?

A. Yes, I did; it was not self-supporting.

Q. It would require timbering?

A. Yes, throughout.

Q. Throughout? A. Yes.

Q. And during your visits to the tunnels did you form any opinion as to whether or not the timbering methods pursued by the contractor were in accord with standard tunnel practice? A. Yes.

(Testimony of Otto W. Peterson.)

Q. Were they?

Mr. Wittschen: Objected to as immaterial.

The Court: I will allow it.

Mr. Wittschen: Exception.

A. They were.

Mr. Smith: Q. Was the work of the contractor delayed by anything you observed while you were at the tunnel on these trips of inspection? A. Yes.

Q. For what reason?

A. There were delays, first of all, at the West Portal excavation, due to caving of the banks, difficulty of gaining access to the portals until the excavation was completed. In my opinion, the work of driving the tunnels, themselves, was substantially delayed because of the ground conditions which were encountered, the reason being that the ground was very much heavier [1871] and more difficult to excavate in than the contractor anticipated.

Mr. Wittschen: Just a moment.

The Court: What the contractor had anticipated may go out.

Mr. Wittschen: He may state the nature of the ground and we won't object to that.

A. May I have the question again?

Mr. Smith: Q. The reasons for delay, I asked you the reasons why the contractor was delayed.

A. He was delayed because of the fact, the major reason was because of the fact that the tunnels were very much more difficult tunnels to build and excavate and timber than it was estimated they would be.

(Testimony of Otto W. Peterson.)

Mr. Wittschen: I ask what was estimated to be go out.

Mr. Smith: I think that is a perfectly proper answer. It is an opinion as to why they were delayed.

The Court: What was estimated may go out.

Mr. Smith: Q. Was the contractor delayed by the cave-ins? A. He was.

Q. In your opinion for how long a time?

A. For a period of 90 to 120 days, because of the first cave-in; that covers not only the time of actually clearing up the cave-in, but to complete other work or to do other work in a different way because of the cave-in, square-setting, and the modification of the tunnel lining, and various things that arose out of that occurrence.

Q. Have you finished your answer?

A. The refusal of the Accident Commission to permit timbers to be moved, the general change in the construction procedure, all revolving around that occurrence.

Q. As far as the February, 1936, cave-in was concerned, was there any delay occasioned by that?

A. There was.

Q. How long was that delay?

A. That was a delay of about 60 days.

Q. How long a delay was occasioned by the causes that you mentioned a [1872] few moments ago at the west portal, and outside of the west portal, in the approach?

(Testimony of Otto W. Peterson.)

A. From one to two weeks' delay was occasioned at the west portal in excavating the approach cut and getting started on the tunnel work.

Q. And in the west portal section of the tunnel that you mentioned, the same question.

A. There there was probably a delay of about one to two months because of the plan that had to be followed to excavate and build these particular tunnel sections, and the special difficulty of the ground at those places.

Q. In your opinion what progress would have been normal progress for the contractor to make as you observed the contractor's forces and equipment in the construction of these tunnels, in the excavation of the tunnel bore in feet per day, if the ground had been self-supporting?

Mr. Wittschen: Objected to as immaterial and argumentative, and calling for his conclusion.

The Court: I will give him a record. I will allow it.

Mr. Wittschen: Exception.

A. Nine to ten feet a day.

Mr. Smith: Q. Had you made an examination of the progress which the contractor had made in the main excavation east of the west portal work, from the west portal in? A. Yes.

Q. What actual progress was the contractor able to make?

A. He was able to make an actual over-all progress, including the delays encountered, of approxi-

(Testimony of Otto W. Peterson.)

mately 3⅓ feet per day. During the time they actually drove, eliminating the delays his progress was approximately 4½ feet per day.

Q. Was the progress of 4½ feet per day made apart from the delays occasioned by the cave-ins and from special causes, in your opinion, a normal and fair rate of progress in the ground encoun-

[1873] tered? A. It was.

Q. What, in your opinion, was the total delay experienced by the contractor, in days?

Mr. Wittschen: I can add it up for you. It would be a maximum of 180 and 14 and 60, or 254, and a minimum of 50 or 60 less.

Mr. Smith: I do not think the computation is right.

A. I would say about 300 days.

Q. Mr. Peterson, I will show you Defendant's Exhibit G-4, which as I understand it purports to be a correct representation of the timber in the north tunnel, a portion of the north tunnel, toward the west end, having the station numbers thereon, and I will ask you to state to the Court whether, in your opinion, that exhibit correctly portrays the timbering as you examined it in the tunnel?

A. It appears to portray a certain part of the timbering, the posts and wall plates and segments.

Mr. Tinning: That is all it is intended to represent.

Mr. Smith: Q. It does not include the collar bracing or lagging, does it? A. No.

(Testimony of Otto W. Peterson.)

Q. Did you check to see whether it correctly illustrates the timber as far as you could find it?

A. I have not attempted to make a detailed check.

Q. Is collar bracing an important part of the tunnel timbers? A. Yes.

Q. What was its function?

A. Well, the collar bracing is put in between the segments, particularly to give them lateral bracing and make them more effective as columns to support the lagging.

The Court: I should say the tunnel has been braced up sufficiently for all purposes of this case, as far as construction is concerned. We have had diagrams and maps and figures, and it goes without saying that it was braced up in this heavy ground that [1874] you are talking about.

Mr. Smith: Q. Mr. Peterson, did you observe the blasting methods and shooting methods employed by the contractor? A. Yes.

Q. When you were on the work? A. Yes.

Q. Were those methods, in your opinion, in accord with standard and customary tunnel construction practice? A. They were.

Q. In connection with the estimate for the construction of this tunnel, Mr. Peterson, was the contractor justified in estimating that he would drive this tunnel entirely from the west end without going to the east end?

Mr. Wittschen: Objected to as calling for the

(Testimony of Otto W. Peterson.)

opinion and conclusion of the witness on a matter that is not the subject of expert testimony.

The Court: Someone developed that in this case, that tunnels were driven on both ends. This testimony, I take it, is in answer to that. Who developed that, I think it was you, was it not?

Mr. Wittschen: No, we did not.

The Court: If my memory serves me you indicated that construction ought to have been going on at both ends.

Mr. Tinning: If I remember, your Honor, some witness testified it was not possible to drive from both ends, and on cross-examination we developed certain ideas in connection with it.

The Court: I will allow you to go into it briefly in the matter of time.

Mr. Smith: Q. Do you know the question?

A. Yes.

The Court: It is conceded it would be the most economical.

Mr. Smith: There are many other reasons.

A. The first thing for the contractor to determine was the type of ground and for this particular tunnel the time of 720 days was an ample time to drive the tunnel, this particular tunnel, as the [1875] ground conditions were indicated from one end only. Here he had two parallel bores approximately 3000 feet long in which progress of 9 to 10 feet per day could be made except for very short special sections. Secondly, the material from the

(Testimony of Otto W. Peterson.)

tunnel which was suitable for road purposes was all to be used in the low westerly portal of the tunnel; the contractor was required to place such suitable material as the District might direct in these roadway fills, and in order to deliver the good material he likewise had to haul, or would logically haul the poor material to the same westerly heading so as to be sure that he would be prepared to meet that requirement. That was the reason, there was ample time and there was the reason that the material was logically to go to the roadways at the west end. Aside from that, naturally a contractor would prefer to drive the tunnel from the west heading for economic reasons, because of the driving up hill and handling of water; also for the reason that there was ample construction space at the west end and that it was possible to drive only part of this tunnel from the east end, but the contractor had no reason to feel that he should spend money for additional plant to drive downhill on a steep grade of 4 per cent., which is quite unusual grade for tunnels, not unusual for some highway tunnels, but it is out of the ordinary for tunnels; then there were reasons of economy, as well, that justified him to do all of his work from the west end as long as he was sure he could complete the job within the required time.

Mr. Smith: Q. Mr. Peterson, are you familiar with the amount of profit that is customary for the

(Testimony of Otto W. Peterson.)

contractor to estimate in the construction of tunnels? A. Yes.

Q. What is the customary amount?

Mr. Wittschen: Objected to as being conjectural and speculative and no bearing on this case, and proving no issue, and immaterial.

The Court: The objection will be sustained unless it is dis- [1876] closed how much profit was made in the Boulder Dam. I think that would be helpful.

Mr. Smith: May it please the Court, the evidence is addressed to the proposition, of course, that in this case the plaintiff is suing to recover a reasonable value of the work done, which includes, on our theory, a reasonable cost thereof plus a reasonable profit, and this witness is qualified to state what the normal and customary profit is in tunnel construction. I think he is fully qualified in that department.

Mr. Wittschen: Aside from that, I have innumerable cases which I would like to present that on a question of quantum meruit you have to take the cost without a profit.

Mr. Smith: Of course, we have cases to the opposite.

The Court: I think I can express my view to you. I have it in mind and will do so if you wish.

Mr. Smith: I would like the witness to be permitted to answer the question.

(Testimony of Otto W. Peterson.)

The Court: I will give you a record on it in any event, so if I am in error I will have an opportunity to check it.

Mr. Wittschen: Note an exception.

A. The usual profit figured by a contractor on tunnel work is 17½ per cent.

Mr. Smith: That is all.

The Court: We will take a recess for a few minutes. [1877]

(After Recess)

Mr. Tinning: At this time, if the Court please, the defendants in this action offer in evidence the grant agreement between Joint Highway District No. 13 to the State of California and the United States, which contains the provisions with respect to the obligations of the District as to the modified form of plans and specifications in the construction of its project.

Mr. Smith: The offer will be objected to on the ground it is incompetent, irrelevant and immaterial; has nothing to do with the contract between the plaintiff and the defendants in this action; was not referred to or made a part of it in any way or mentioned in the contract between the plaintiff and the defendants in this action. As a matter of fact, it was never directed to the attention of the plaintiff, and the plaintiff was unable to obtain a copy of same until about a year after the contract was entered into. It is absolutely immaterial and has no bearing

(Testimony of Otto W. Peterson.)

on the issues in this case whatever. There is no privity of contract whatever between the PWA and the plaintiff in this case.

Mr. Alexander: The cross defendant surety companies make the same objection, your Honor.

Mr. Tinning: If the Court please, the specific supplement and amendments to January 9, 1934, contain a provision with respect to this contract that the obligation of the Contractor under the contract with the District to comply with all of the regulations of the PWA then in effect and thereafter promulgated and this specifically is already in evidence. The provision that I have in mind reads as follows:

"The attention of all bidders is hereby——"

[1878]

Mr. Smith: What page are you reading from?

Mr. Tinning: Page 3 of the first supplement.

Mr. Smith: Of which supplement?

Mr. Tinning: I have already referred to it, Mr. Smith.

Mr. Wittschen: The first one. There is a first and second supplement.

Mr. Tinning: January 9, 1934:

(Reading:) "The attention of all bidders is hereby specifically called to Bulletin No. 2 of Federal Administration of Public Works entitled 'General Information and Instructions for the Guidance of State Advisory Boards and State Engineers (P.W.A.)' A grant of thirty

(Testimony of Otto W. Peterson.)

(30) per cent of the cost of labor and material used in the project of the District has been made by the Public Works Administration of the United States under the terms of said National Industrial Recovery Act, and all bidders are hereby advised that the Directors of the District will cooperate with the Public Works Administration and all its officers and employees in the enforcement of all of the provisions of said National Industrial Recovery Act and the rules and regulations heretofore and hereby promulgated applicable to the performance of the work on the project of the District." [1879]

There are certain provisions in the contract between the District and the PWA of the United States which require the structure to be constructed in accordance with the plans and specifications with such minor alterations or modifications may be from time to time approved by the second party,—that is, the United States.

Mr. Smith: It is very obvious, from the reading by counsel, in the clause, notice to bidders, which he read aloud to your Honor, that it refers entirely to labor conditions under the National Industrial Recovery Act, or the NRA as it was known at that time. In other words, there is no question about the performance by the Contractor of this contract; it had to be pursuant to the conditions laid down by the regulations of labor and the conditions of labor by the Act involved in accordance with regulations

(Testimony of Otto W. Peterson.)

put out by the PWA; but that is totally different from a long agreement between the District and the PWA, by which the District borrows money, and copies of which were never furnished to the bidders or the Contractor. We renew our objection.

Mr. Tinning: Your Honor, the offer is made because of the fact that it was necessary for the District to secure authority to make any modification or change in its plans or specifications.

The Court: Their answer to that is they had no knowledge or notice of it.

Mr. Tinning: We think, however, the specific provision for it——

The Court: I will give you a record on it. I will allow it subject to a motion to strike and over your objection.

Mr. Smith: Note an exception.

Mr. Alexander: Exception, your Honor.

(Thereupon, the document was marked "Defendants' Exhibit O-4.")

[Set forth in the Book of Exhibits at page 471.]

Cross Examination

Mr. Tinning: Q. Mr. Peterson, when you came on this work, were [1880] you employed as an expert when you first came in contact with the Broadway Low Level Tunnel?

A. When I first came in contact with this work, my visits were personal.

(Testimony of Otto W. Peterson.)

Q. Well, you said that this morning. Were you employed as an expert or were you going out voluntarily to help a friend?

A. No; I did not go out to help anyone. I just went out to visit this tunnel project.

Q. You mean to inspect it for your own purposes?

A. No; not— Just personal visits with Mr. Larson and Mr. Whitmire and Mr. Fontaine and Orselli, and others that I knew out there.

Q. When you made those visits, you observed the work? A. Yes.

Q. When you went out there on August 5, 1935, did you go as an employed consultant, or did you go as a friend of S. D. Bechtel and Mr. Phillips?

A. I went primarily as a friend of Mr. Bechtel and Mr. Phillips; I was not actually employed at that time.

Q. When were you first employed by Six Companies, the plaintiff in this case?

A. Beginning at the time of the first cave-in, when I was called upon to go up and inspect the cave-in in the tunnels.

Q. When you went out there on the morning of the 29th of August, 1935, where you spent all morning and then went with engineers of Six Companies to the Joint Highway District office, were you employed by Six Companies at that time?

A. I considered that I was, yes. I was asked by Mr. Bechtel specifically to go out there and do that. There was nothing further said than that he wished

(Testimony of Otto W. Peterson.)

to have me join as one of a group of engineers to consult on the job.

Q. Did you afterwards receive compensation?

A. No, sir.

Q. For that visit?

A. No; I did not, at that time. I figured I would get it.

Q. Did you receive it? A. Yes. [1881]

Q. But none prior to that time?

A. Not that I recall.

Q. Were you employed by any one of the constituent companies that form the plaintiff in this action,—Six Companies of California,—during the period referred to, prior to August 29, 1935, and after June 4, 1934? A. Prior to August 29th?

Q. The time of your employment in this matter?

A. Yes, I have done work previously for some of the companies.

Mr. Smith: He limited it to one year.

The Witness: One year. Within a period of one year, I had done work for some of the companies.

Mr. Tinning: Q. For how long prior to June, 1934, had you worked for any of the companies?

A. For how long prior?

Q. Yes, Just generally, Mr. Peterson.

A. Oh, possibly 5 years; some incidental things that were done.

Q. Starting from a time in 1927 and 1928 up to the present date, you have been continuously employed as an engineer by the Pacific Gas and Electric Company? A. Not continuously; no, sir.

(Testimony of Otto W. Peterson.)

Q. From 1927 up to now, how long have you been away from your employment with the Pacific Gas and Electric Company?

A. I have not been away; but my pay has not been continuous,—if that is the test.

The Court: Q. You got a leave of absence?

A. Yes, sir.

Q. Covering a period of time?

A. Oh, just a matter of a few weeks or possibly a month or two in the aggregate.

Mr. Tinning: Q. Were you on a leave of absence from the Pacific Gas and Electric Company when you were in charge of the work of recovering the Broadway Tunnel?

A. I was not on a formal leave of absence at that time; no.

Q. Were you receiving compensation from them at that time?

A. Well, it is my practice not to charge for work that I don't do. [1882]

Q. Well, Mr. Peterson, if you would answer the question, we would get along faster. Were you receiving compensation from the Pacific Gas and Electric Company at the same time that you were doing this work on the Broadway Tunnel?

A. During the same period, yes.

Q. When you inspected these tunnels shortly after the slide on August 28, 1935, one of the things you recommended was the immediate concreting of old portions of the timber in the unconcreted tunnel, was it not? A. Yes.

(Testimony of Otto W. Peterson.)

Q. The slide on that date was caused by the workmen while the workmen were removing timbers which had intruded into the tunnel section?

A. Yes.

Q. At a place where the timbers had been standing unsupported by the permanent lining for some 6 or 7 months?

A. That is approximately correct; I do not know the exact time.

Q. Did you recommend, at any of your visits prior to the 29th of August, 1935, that Six Companies place the lining in the tunnel?

A. No, sir; I did not make recommendations to the Company.

Q. Well, you had friends working in the Company? A. Yes.

Q. You never discussed that with them?

A. I discussed their concreting plans with them, in a personal way, and they said they were doing all they could to go ahead with the concreting of the tunnels. I did not feel that it was my province to be too inquisitive as to the details of their particular arrangement.

Q. Did you think it was good practice to leave those timbered sections unlined for this period of time?

A. Yes, if I may give my full reasons.

Q. Well, the point is you thought it was good practice? A. Yes.

Q. Go ahead and give your reasons.

(Testimony of Otto W. Peterson.)

A. I observed the ground that they were going through, and I discussed the type of ground which both Mr. Larson and Mr. Whitmire expected to encounter; and they ex- [1883] pected to go into very much better ground, into chert, and it would be self-supporting, and everyone was very optimistic about the stability of the ground which would be encountered later; and, with that expectation and with the practice that I have had of driving tunnels, excavating tunnels, either completely or to a substantial extent before concrete started, I saw no reason why they should not proceed along the same lines in this particular tunnel.

Q. The ground, you say, though, was heavy that they had passed through when you got there?

A. Portions of it were; largely at the portal and immediately adjacent to the portal section.

Q. You were out at the tunnel on the 14th of April? A. Yes.

Q. You said the tunnel was all in heavy ground?

A. Yes; it began to look discouraging at that time, and along, possibly the latter part of that period, as August approached, I felt, particularly in the latter part of August, at that time that concrete should follow along energetically; but it is customary to allow excavation to proceed about 5 to 6 months in advance of concreting, providing the ground is ground as it was in this tunnel, the area of the Monterey sandstone, and with the expectation of better ground, to follow up with the lining.

(Testimony of Otto W. Peterson.)

Q. Well, had you ever seen a tunnel driven in Monterey sandstone before, Mr. Peterson?

A. I have seen tunnels driven in—I don't know that I have seen the Monterey sandstone. I am not a geologist. I have seen sandstone. They have some Franciscan sandstone in the Islands that may be related to it.

Q. You just stated it was customary to leave Monterey sandstone tunnels open for 6 months?

A. No; I did not intend to make that statement.

Q. Well, we will get to that.

Mr. Smith: I believe he said ground like the sandstone. [1884]

Mr. Tinning: Q. Mr. Peterson, did they leave the Franciscan sandstone, the Yerba Buena Tunnel, open for 6 months?

A. I don't know just how long that tunnel was left open. That was a different type of a job entirely.

Q. Well, you referred to it?

A. Yes; it was a different type of construction entirely; different methods.

Q. You say it was a different method?

A. Yes.

Q. And they left the core in, supporting the tunnel against the core until the lining was placed; then took the core out? A. Yes.

Q. Steel beams? A. Yes.

Q. Do you believe that the Franciscan and Monterey sandstones are comparable?

A. Well, I don't think—I would rather not go into a geological discussion. My observations were

(Testimony of Otto W. Peterson.)

mainly to the suitability of formations and not to the technical geological terms.

Q. Then, what we are discussing——

A. Well, the Franciscan can be a very unstable formation and a very sound one; likewise, the Monterey.

Q. Let's take the one you refer to?

A. Well, then you have to go to the type.

Q. Well, Mr. Peterson, if your will listen, we will get to that. A. All right.

Q. The type we are referring to is the Franciscan, to which you referred on the Yerba Buena Tunnel. I am asking you whether you considered material in that tunnel comparable to the material in the Broadway Tunnel as to suitability; and I am referring to material in the Monterey sandstones to which you referred.

A. I don't think you can compare those two tunnels at all by the material; they were in part the same, and there was some very bad material in the Yerba Buena and some very good material; and the material was all grouted before the tunnel was built, and it was all in its natural state. It is an entirely different type of tunnel, [1885] and I don't think you could compare——

Q. Then you wish to withdraw your comparison?

A. Yes, I will withdraw it, if I made one.

Q. Well, I thought you did. You stated that, in your conferences that you had after you were employed by Six Companies, you were seeking to find

(Testimony of Otto W. Peterson.)

a solution of the problems that you found in the tunnels? A. Yes, sir.

Q. Which included timbers which were hazardous? A. Yes.

Q. You told about seeing the heavy ground in the tunnel. Did you have any other object, when you were discussing this matter with the District——

A. None whatever, when I entered the employment.

Q. —did you have any object or intention to try to cause the District to change its design of the tunnel lining?

A. No; not when I started the work.

Q. How soon after you started the work did you obtain that object?

A. I don't know; I don't think that I obtained that object at any time. I made some suggestions before I realized that it was the province of the District to determine the design; but any suggestions that were made were made purely as suggestions.

Q. Did you entertain the idea in your own mind at that time that the design of the lining of this tunnel should be changed and strengthened?

A. If I were the Engineer——

Q. Will you answer "Yes" or "No," please, and then explain? A. In my own mind?

Q. Yes A. Yes, I did. [1886]

Q. When did you first conceive that idea?

A. When I saw the type of ground that the tun-

(Testimony of Otto W. Peterson.)

nel was being driven in and the force of the formations acting there.

Q. You studied the plans and specifications and you knew there were to be B sections provided for with an invert? A. Yes.

Q. Did you ever recommend in any of your conferences with the District representatives that the inverted sections should be installed in heavy rising ground? A. No.

Q. You were present at some meetings with some of the District representatives, at least with Mr. Sanborn, were you not? A. Yes.

Q. Mr. Sanborn was an associate professor from Columbia University, of New York?

A. Well, I think he was at one time. I do not believe he was at this particular time. I do not know what his connections were.

Q. He made recommendations in your presence, did he not, to the District's representative?

A. Yes, he did.

Q. What were they?

A. He thought the tunnels should be very substantially strengthened in several respects, that a substantial invert should be added, that it should have a good drainage system, and he thought that the side walls and arch should be strengthened.

Q. Should be thickened? A. Yes.

Q. With additional concrete?

A. That was his idea.

Q. That required a complete change in the design of the tunnel under which the contractor was

(Testimony of Otto W. Peterson.)

proceeding with the work, did it not? It would be at the same location but it would be an entirely different structure, would it not?

A. Well, it would be a similar structure, it would not be entirely different. I would say it would be very much the same.

Q. You think it would?

A. Yes, much the same, except it was more [1887] substantial in thickness and dimensions.

Q. Dimensions of walls? A. Yes.

Q. How thick did he want the side walls?

A. I don't remember his exact dimensions. He was telling his own story.

Q. You were listening to it?

A. I listened to it.

Q. You listened to a lot of other things he had to say, did you not? A. Yes.

Q. Didn't you pay much attention to what he had to say? A. I listened with interest.

Q. Didn't you arrange to have Professor Derleth listen to it?

A. Yes, he wished to have an opportunity to present his views and I arranged for a conference between the two, but it was Mr. Sanborn's presentation that was being made.

Q. You did not object to it?

A. No, I was an auditor.

Q. That was on September 4, 1935, was it not?

A. That is correct, I believe.

Q. And it was at the tunnel where Mr. Price and Mr. Sanborn and yourself and Professor Derleth had the conference? A. No.

(Testimony of Otto W. Peterson.)

Q. Where was it? A. It was at the tunnel.

Q. What is wrong about what I said?

A. Your surroundings, your attendance is wrong.

Q. Tell me who was present.

A. Just Professor Derleth, Mr. Sanborn and myself.

Q. Mr. Price was not there? A. No.

Q. I was 25 per cent. wrong. Mr. Sanborn at that conference stated in substance and effect, did he not, that he wanted to change the design of the tunnel lining sections by constructing an invert floor three feet in thickness, he wanted to add to the thickness of the section of the walls throughout the arch, and in his plans he entirely eliminated any consideration of the effect on the ventilation [1888] system, did he not?

A. I don't remember the details, Mr. Tinning.

The Court: Whose money was he spending?

Mr. Tinning: Q. Do you remember that in that conversation that after Mr. Sanborn had read his report and explained it to Mr. Derleth he asked Professor Derleth what he thought of the report?

A. I don't remember his reading a report, Mr. Tinning. I do not think he had a written report.

Q. You don't think he had one?

A. He might have had some notes, but I certainly didn't notice any written report.

The Court: Where was this meeting?

A. This was the meeting in the office of the Tunnel, the Six Companies' Office.

(Testimony of Otto W. Peterson.)

Mr. Tinning: Q. That you arranged between Professor Derleth and Professor Sanborn?

A. I asked Professor Derleth to give Mr. Sanborn an opportunity to present some views that he wished to discuss with Professor Derleth, and that was the outcome of the interview. Mr. Sanborn was not reporting to me.

Q. You were an expert and you heard what he said, that is the fact I wanted evident, and you remember then that after he had stated the essential elements of his plan to Professor Derleth, he asked Professor Derleth what he, Professor Derleth, thought of the plan?

A. I think Professor Derleth expressed his views without being asked.

Q. You do not think Mr. Sanborn asked for them?

A. I don't know whether he did or not. But I know Professor Derleth expressed his views.

Q. Did Professor Derleth tell him at that time he did not think that Mr. Sanborn had gone far enough and that he thought that his plan was defective because he had not filled the holes completely with concrete?

A. That is correct. That is one thing that is correct. [1889]

Q. We agree on one thing. Do you remember visiting Professor Derleth's home on September 3, 1935, in the evening, with Mr. Henry Kaiser?

A. Well, I did not visit with Henry Kaiser.

(Testimony of Otto W. Peterson.)

When I was visiting with Professor Derleth Mr. Kaiser came in.

Q. You were both working for the Six Companies that night, weren't you?

A. Well, I presume so; he was one of the Six Companies; I don't know as he was working for them.

Q. Then Mr. Steve Bechtel came in later?

A. No.

Q. This was just the evening before the Professor said what he thought about Professor Sanborn's plan?

A. It did not have any influence—I would not try to influence Professor Derleth.

Q. Do you remember on that occasion that Mr. Kaiser said that he wanted to discuss some method of expediting the authority from the P.W.A. and the State of California to secure a modification of the design? A. No.

Q. You don't remember that? A. No.

Q. Do you remember at the same time that Professor Derleth told you and Mr. Kaiser that the trouble with the tunnel was entirely due to not having proceeded promptly with the concreting after the excavation? A. No, I don't remember that.

Q. You don't remember that? A. No.

Q. Have you got any notes of these conferences?

A. Well, I may have some notes of my various conferences, but I don't recall any mention of those particular items.

(Testimony of Otto W. Peterson.)

Q. The book that you had with you this morning would show that? A. I have that book, yes.

Q. Is that your original memorandum book?

A. That has just a list of those specific dates that I made visits to the tunnels, and sometimes there are initials there of the persons that were at the tunnel at the time of my visit. [1890]

Q. I take it from your answer that is something that you have prepared to refresh your memory from from your original notes?

A. To serve as a guide from my original notes.

Q. And there is no reference in your note-book to your conference with Professor Derleth at which Mr. Kaiser and you and Professor Derleth were present on September 3, 1935?

A. Well, I may have a reference to that.

Q. Would you mind looking at your notes?

A. I will see if I have a reference in the diary that I have here.

The Court: What is the date?

Mr. Tinning: September 3.

A. September 3, 1935. I do not know whether this book carries any particular notation about that. There is no mention of any conversation. I was at the office and various other places, and also I called at Professor Derleth's house, and I believe I did on that occasion ask him if he would see Mr. Sanborn. That is the only note that I have.

Q. When you were in college Professor Derleth was one of your professors, was he not?

A. He was.

(Testimony of Otto W. Peterson.)

Q. And you have been closely associated and friendly with him all of these years since you left college? A. I have.

Q. And have visited at his home on occasions?

A. Yes.

Q. One of your first positions when you left college was with Mr. Lippincott, was it not?

A. Yes.

Q. You were also on terms of confidential relationship with him over many years, were you not?

A. Yes.

Q. And you also knew Mr. Van Norman, one of the District consultants, very well? A. Yes.

Q. For many years? A. Yes.

Q. When you entered into these negotiations and discussions looking toward a solution of the physical problem that you had at the tunnels, [1891] where you were representing the Six Companies, those negotiations were made on the basis of the relationship of confidence that existed between you and these other gentlemen? A. Yes.

Mr. Smith: I submit that question is objectionable as to the basis of them. He testified what they were. That is not proper cross-examination.

The Court: He testified he was in school and there was a friendship going on for years, and social visits at home.

Mr. Smith: If there is an imputation in the question that he took any advantage of the relationship I think the question is objectionable.

(Testimony of Otto W. Peterson.)

The Court: I do not think there is. Frankly, I did not think about that. Proceed.

Mr. Tinning: Q. When these conferences were going on, Mr. Peterson, you never had in your mind in discussing these matters, in what was said between you engineers, in trying to solve this physical problem at the tunnel, that it was something later to be testified to in court, did you?

A. I had no such expectation whatever.

Q. So anything that was said by either of you back and forth in these discussions, it was not said with the expectation of being used as an admission against the party for whom such consultant was working at that time? A. That is correct.

Q. I understood you to testify this morning in substance and effect that Mr. Lippincott told you in one of these conferences that he thought that the conditions which the contractor had met in this tunnel had been misrepresented to him?

A. That he made that statement?

Q. Yes.

A. No, I did not intend to convey that idea.

Q. You did not intend to make that statement?

A. No. [1892]

Q. You did not intend to make that statement?

A. No.

Q. So there can be nothing construed from anything that you testified here that Mr. Lippincott at any time in all of these negotiations said in substance and effect that he believed that the Six Com-

(Testimony of Otto W. Peterson.)

panies had been misled or that the conditions on this work had been misrepresented to them?

A. No. I might clarify that if you desire.

The Court: You may.

A. All we were endeavoring to do was work out this modification, and Mr. Lippincott's statement that I did not quite fully understand the situation, and I maintained that in doing this particular thing the contractor should not be required to waive any proper claims that he might have, and Mr. Lippincott said that the contractor had a perfect right to reserve such claims as he might have in the building of the tunnel, but he indicated no doubt as to the reasonableness of any claims that the contractor might then have, or later have, just a legal position that he spoke of, just a legal opinion from an engineer.

Mr. Tinning: Q. In other words, he recognized, as everybody else did, that the contractor had claims and he had a right to make them?

A. And reserve the right to present claims such as he might have, that is all.

Q. And whether or not the claims of the contractor were valid or not was not a matter of discussion? You were discussing the physical problem that confronted you? A. At that time, yes.

Q. Did you ever discuss with Mr. Lippincott, and I mean now in these conferences at any time discuss with Mr. Lippincott whether or not he believed that Six Companies had——

A. (Interrupting) No, I did not try to press

(Testimony of Otto W. Peterson.)

anything like that on Mr. Lippincott or anybody else. All that I endeavored to do was to suggest [1893] that such claims as the contractor might have be reviewed in arbitration, if possible, rather than being carried into court.

Q. That was another matter and you took that up directly with the District? A. Yes.

Q. When you spoke about the desired, hurried lining decision in September, when you took hold of this thing, did you have in mind the proposed dropping of the section 10 inches?

A. Not immediately. I didn't know what the solution would be. I had no definite plan in mind at that time.

Q. I understood that you desired to get a decision promptly from the District Engineer?

A. By the 10th of September, I felt that that was the proper thing to do, very definitely.

Q. You knew in your talks with Mr. Boggs that it would be necessary to secure the approval from the State and P.W.A. to such modification?

A. Mr. Boggs informed me of that, that he would have to consult them.

Q. In working that design out did you give consideration to the fact that by dropping the top of the tunnel 10 inches, as was actually done, and bringing in the walls six inches, as was actually done, that 10 per cent. of the designed area for the air ducts in the tunnel was cut off?

A. I knew there would be some reduction provided the same roadway space was held, but there

(Testimony of Otto W. Peterson.)

were various ways in which that change could be accomplished. That was the particular solution which the district decided to make.

Q. So that there was 10 per cent. of the area——

A. (Interrupting) I did not consider that of any moment.

Q. Just a moment, let me finish, so that there was actually, under the modified design that was authorized, after the Industrial Accident Commission letter of September 24, 1935—the area in the air ducts was cut, where you had a modified section, was cut [1894] down 10 per cent.?

A. I don't know what that amount was, Mr. Tinning.

Q. You do not quarrel with that, do you?

A. I do not think it is a serious matter, myself. I thought the air duct space was rather ample. I think it would have been a little cheaper project.

Q. You are volunteering now, passing on some other engineering work.

A. That was caused by this particular comment.

Q. Do you know that the cutting down of the air ducts has cut down the capacity for air to be driven through those ducts 5 per cent.? A. No.

Q. Do you know that during the discussion that the P.W.A. engineers requested the District to require the contractor to pay the capitalized value on that cost?

A. Some other solution that would have been

(Testimony of Otto W. Peterson.)

more favorable to the District might have been worked out under those conditions.

Q. You have in mind at the time this was being worked out, do you, the exhibits in this case, the letter of Six Companies, Exhibit OO, in which they offered to do certain things on September 1, 1935, in connection with the safety of the tunnel, the trimming of timbers, completing the concrete lining in the unlined portions of the excavated tunnels with a crown height 6 inches lower than the crest of the present theoretical crown height?

A. No, I do not have that in mind.

Q. You do not have that in mind?

A. No. That was the preliminary plan we were all working on, and later went on to a plan which we realized was a better and more proper plan, as regards the amount that the arch should drop.

Q. Defendant's Exhibit OO, offering to do this work, contained no clause with respect to any claims or reservation of rights by Six Companies, but Defendant's Exhibit PP, a letter of September 3, 1935, written at the very time that you were negotiating and dis- [1895] cussing these matters with Professor Derleth and Mr. Lippincott and Mr. Boggs, stated,

> "Under date of September 1st, we wrote you a letter concerning changes in plans and specifications for concrete lining of the excavated portion of the Broadway Tunnels. By this letter we advise you that our letter of September 1st, above mentioned, was written and shall be con-

(Testimony of Otto W. Peterson.)

sidered by you subject only to the following further conditions:

"1. That in making the suggestions contained therein, we assume no responsibility or liability of any kind or character for any design suggested by us or the safety thereof, in the event you direct us to carry out the things stated in our letter."

A. Yes.

Q. Then:

"That we reaffirm and state our position to be as stated in our letters to the Board of Directors of your District dated, respectively, August 23rd and August 28th, 1935."

You knew about those letters?

A. I think those letters were written by an attorney.

Q. Yes, I think so.

A. That particular letter.

Q. Would you like to change the design of those letters?

A. This is purely a preliminary effort to arrive at a solution of this problem, just like other things were, and we finally arrived at a good plan; we were all impatient to get something decided, and this was a preliminary and probably a useful step in seeking that conclusion.

Q. In developing the crystallization. A. Yes.

Q. You have in mind the District letter of September 5, I think, Mr. Peterson, "You are advised

(Testimony of Otto W. Peterson.)

to cease and desist" pouring tunnel concrete in the forms which you were proposing to cut down?

A. I remember that.

Q. Will you answer the question, do you remember the letter? [1896] A. Yes, I do.

Q. And it was a fact, was it not, that you stopped the effort to pour the tunnel lining on the unauthorized section after you received this letter?

A. Yes, I did.

Q. Then you remember another letter of September 5, Defendant's Exhibit QQ, in which the Secretary of the District advised Six Companies that the District considered that it was the duty of the Six Companies to proceed to construct the tunnel in accordance with the plans and specifications?

A. Yes, we decided we would do that at one time.

Q. And that was at the same time or one day after you were up talking to Professor Derleth with Mr. Sanborn about trying to change the design?

A. I was not trying to change the design at any time.

Q. You entertained ideas that it was advisable?

A. I did, personally. You asked me my personal views, but otherwise I would not have expressed them. I was suggesting my own personal view, and I did not advertise it, I did not write any letters about it; I have never written a letter or made any expression in that regard.

Q. During that time, the early week of September, all of the time Six Companies was placing con-

(Testimony of Otto W. Peterson.)

crete in the portions of the tunnel where you could do so to standard sections? A. Yes.

Q. How many feet of steel forms did you have in the tunnel at that time?

A. What time, Mr. Tinning?

Q. On September 5.

A. I don't know the exact footage.

Q. Well, approximately.

A. I should judge we had about four forms, I don't know the exact number of lineal feet.

Q. Weren't there two forms of 27 feet in length and was not one of them cut down in half?

A. I am not positive about that.

Q. There were four 18-foot forms, were there not? A. I think that is correct. [1897]

Q. You were using all of those, were you not, during that period in the tunnel, placing concrete?

A. As effectively as possible.

Q. So you were not delayed during that period in placing concrete by the difficulty of working out this modified section?

A. We were working to a very limited capacity, that was just a start.

Q. You only had those four 18-foot sections?

A. At that particular time, but we had plenty of work in which we could use similar forms.

Q. How long would it take to get additional forms?

A. We could get additional forms, or if the ground was better we could have moved very much faster; it was a very restricted operation.

(Testimony of Otto W. Peterson.)

Q. Mr. Peterson, let us get right to the matter. You had four 18-foot forms and you used them all through this period, did you not, pouring?

A. Yes.

Q. How were you delayed in pouring this concrete lining by the delay of the district in giving you authority to pour the modified section?

A. We were not delayed in that very restricted area, but it was because of the way in which we could work, it was so restricted that we were delayed on the job as a whole.

Q. What did the District have to do with the timbers being in the tunnel?

A. I don't know, unless, I think certainly the contractor was not responsible for the ground encountered as much as the owner.

Q. That is your opinion. The District did not put the ground there, did it?

A. They selected the site and they made the representation.

Q. And they made a bad job of it?

A. No, I do not criticize the selection of the site. I am not critical of the design or the geology. [1898]

Mr. Tinning: That is all.

The Court: We will take a recess for a few minutes.

(After recess:)

Mr. Tinning: No further questions. [1899]

Mr. Smith: Just a few more questions, your Honor, on redirect.

(Testimony of Otto W. Peterson.)

Redirect Examination

Mr. Smith: Q. You spoke of the Yerba Buena Tunnel being a different type of tunnel from the Broadway Tunnel. In what sense did you use the word "type" when you said that?

A. That is a wide tunnel,—wide between the sides; some 70 feet wide, from spring line to spring line across the width of the tunnel.

Q. Where does the spring line occur, approximately; the wall plate line in most tunnels?

A. Well, about what would be the wall plate line in most tunnels.

Q. Well, you are referring, then, to the width of the tunnel at that point where the wall plate line would be in the Broadway Tunnel?

A. In a tunnel of that size.

Q. Where do you differentiate the two types you speak of as being very wide and those being wider in the same type?

A. Well, generally, I would say tunnels up to 35 feet wide are in one type,—that is, tunnels from 20 to 35 are in one class,—large tunnels; and the tunnels of over 35 feet and particularly over 40 and over 70 are very broad tunnels,—tunnels of great magnitude; in fact, Yerba Buena Tunnel has the biggest cross section of any tunnel in the world, so far as I know. It is a very, very different tunnel from the Broadway Tunnel.

Q. How large is the Broadway at that point that you mentioned between the wall plates?

A. 33 feet.

(Testimony of Otto W. Peterson.)

Q. How wide is the Sunset Tunnel at that point?

A. 30½ feet.

Q. How wide are some of the vehicular or highway tunnels that you know of at that point?

A. The Stockton Street Tunnel is about 55 feet wide. The Richmond Vehicular Tunnel is 41 feet wide. The Figueroa Street Tunnel is approximately 50 feet wide between the steel or timbered supports at the outside of the excavation. In [1900] other words, about 50 feet wide. In other words, the Twin Peaks Tunnel, the Sunset Tunnel and the Pit Three Tunnel and the Broadway Tunnel are all large tunnels; but they are tunnels that are of the type that would be excavated,—fully excavated,—before concreted. A tunnel such as Stockton Street Tunnel, Richmond, Figueroa and Yerba Buena are of the very broad type, where it is not practicable or feasible or safe to support them with segmental arches without support on the core; and, for that reason, the core must be left in. Those are very different type tunnels. Also, most of them have a flat arch, which is flatter than the semicircular type.

Q. That differentiation, then, is in tunnels of much greater width than the approximate 30 to 35 foot width?

A. Yes; and it is a different type entirely,—different type of construction.

Q. At the Sunset Tunnel, or Duboce Tunnel, did you keep behind the excavation several thousand feet?

A. We started concreting about 5 months after

(Testimony of Otto W. Peterson.)

the excavation of the core, starting at the east portal.

Q. How much of that tunnel was excavated from the east portal?

A. 3000 feet of that tunnel was excavated from the east portal; that is, of the core; and about 1200 feet of the core was excavated from the west portal.

Q. Where was it concreted from?

A. Well, all of the concreting was done from the east portal.

Q. How long were the sections that were excavated from the west portal open; how long had they been open at the time that it was concreted from the east portal? A. About 9 months.

Q. How long was that section that was excavated at the west portal? A. 1200 feet.

Mr. Smith: 1200 feet. I think that is all.

The Court: Is that all of this witness?

Mr. Tinning: That is all.

The Court: We will take an adjournment until tomorrow morning at ten o'clock. [1901]

(An adjournment was here taken until tomorrow, Friday, May 27, 1938, at ten o'clock a. m.) [1902]

Friday, May 27, 1938;
10 O'Clock A. M.

GEORGE T. SLOAN,

called by the plaintiff; sworn.

Direct Examination

Mr. Smith: Q. Mr. Sloan, where do you reside?

A. Oakland, California.

Q. What is your address?

A. 5616 Kales Avenue.

Q. What is your occupation?

A. I am bookkeeper for the Six Companies. I believe I would have the title as of office manager, probably.

Q. When were you employed by Six Companies of California, the plaintiff in this action?

A. June 19, 1934.

Q. Have you been employed by them since that time? A. Continuously.

Q. What were your duties?

A. Originally, just the disbursing of funds for payrolls and for supplies, and adjusting costs, and reporting to stockholders as to the various figures; after February 1, 1935, I took on the duty of purchasing agent along with my former duties and have been, you might say, office manager.

Q. Did you cause to be kept, yourself or under your supervision, a record of the costs of the plaintiff Six Companies of California in connection with its performance of the contract involved in this case

(Testimony of George T. Sloan.)

with the Joint Highway District? A. I did.

Q. Have you prepared a summary of the costs kept by you,—the costs incurred by the plaintiff in this action? A. I have.

Q. I show you a document entitled "Costs Adjusted to September 30, 1937; Construction Costs as of June 13, 1936," entitled in this case, and ask you if that is the document you refer to.

A. Yes, that is it.

Mr. Smith: We offer this in evidence, if it please the Court, as a summary of the true costs incurred by the plaintiff in this case, [1903] in connection with its performance of the contract involved in the action.

The Court: What do they total?

Mr. Smith: Q. Will you explain to the Court?

A. I would be glad to.

Mr. Wittschen: That is what I was going to object to, if your Honor please, on the ground that on the issue of their right to rescind this matter would be immaterial. I do not argue that it would not be material on the main case, but I would like to call your Honor's attention that until such time as the plaintiff has proven its right to rescind, the matter of costs would be immaterial. I venture that Mr. Smith will state,—because we have discussed this matter privately,—that he merely intends to introduce the summary; and then, in the event your Honor holds that they had a right to rescind, at some future date we could examine it and cross-examine.

(Testimony of George T. Sloan.)

On the other hand, if your Honor holds they have no right to rescind, then this would be immaterial. If it comes in, we ought to cross-examine on it, and it would obviously take some days. We would have to look it over, and we dispute very materially costs. If you will recall, at the beginning of the trial we had a suggestion that we confine the preliminary trial to the right to rescind. There is ample precedent for that, your Honor. Your Honor, I am told, in admiralty cases, where you determine liability and then, later, damages, that is the practice. In a very recent case,—I think it was decided within the month,—in Southern California, where the contractor had a disagreement with the Metropolitan Water District upon one of these matters and the District ordered the contractor off the work, it was the converse of ours; but the legal principle is the same; Judge Yankwich there decided that the District had a right to order them off, and, having decided that issue in the District's favor, no evidence [1904] was received in regard to damages, and the case terminated without any determination as to damages; and I am now moving the Court, as part of my objection, that the proof which the plaintiff presents will be limited to the issue of its right to rescind the contract and that any issue as to damages be postponed until the Court has passed upon that issue.

Mr. Smith: Well, we offer the summary of the costs upon the theory, your Honor, as part of our case in chief, for the purpose of proving, as of

(Testimony of George T. Sloan.)

necessity we must, the exact amount which was disbursed in connection with the contract and its performance by the plaintiff, and also for the purpose of showing and establishing that the cost incurred was greatly in excess of the amount which was involved in the original contract, as proof tending to show the contract was vastly different from the contract which the parties executed. However, Mr. Wittschen has made a correct statement of the discussion which we had prior to offering the evidence in question, and that statement is satisfactory to us.

The Court: Are you in accord with his legal position, namely, up to the point where I have to determine whether you were justified in walking off the work?

Mr. Smith: Well, I think your Honor first has to determine the issue that the plaintiff has the right to rescind on the theory——

The Court: Of the right to rescind.

Mr. Smith: Yes.

The Court: For that limited purpose, I will allow it to come in.

Mr. Wittschen: I don't quite understand its purpose, because it does not prove anything on the right to rescind.

The Court: Well, read the statement of counsel.

Mr. Wittschen: He stated the cost was excessive.

The Court: The cost was excessive. [1905]

Mr. Wittschen: Yes; and I take it that the evidence to date has shown that the Contractor's claim

(Testimony of George T. Sloan.)

to be,—and he has put in proof,—that he had to excavate more dirt.

The Court: I had in mind the amount; that was all.

Mr. Wittschen: Yes.

Mr. Smith: That is the extent of the offer.

Mr. Wittschen: I take it the amount would be immaterial.

The Court: I will give you a record on the amount. What is the total?

Mr. Wittschen: Note an exception, please.

The Witness: Just the total amount, or the total cost?

Mr. Smith: Q. The total costs, yes.

A. Well, I thought you might want to explain that to the Court.

Mr. Wittschen: If you put the document in, as Mr. Tinning suggests to me, we will have to cross-examine. The Court has stated he would permit you to establish a total cost.

The Court: I said that, of course, as it was only for the record, since he agreed to the legal view, namely, as to whether we would dispose of this matter of rescinding the contract——

Mr. Wittschen: Yes; I appreciate that.

The Witness: We have two figures.

The Court: Q. Well, give them to us.

A. A figure of total costs before any adjustments, $3,872——

(Testimony of George T. Sloan.)

Mr. Smith: Q. That is, after crediting payments?

A. No; that is before: $3,872,168.86. Then we have drawn up an adjustment figure which takes into account any rentals of plants, or sales of equipment, and so forth, which results in a net credit adjustment of $43,170.02; that leaves a figure that we call adjusted costs, $3,828,998.84.

Mr. Wittschen: May we have an understanding and stipulation [1906] with counsel that these figures being in we need not, at this time, cross-examine on the reasonable costs that you have put in, which you claim to be reasonable costs; and, in the event the Court decides that you have a right to rescind, that then we may go into that matter at a later date?

Mr. Smith: That is satisfactory.

The Court: The record will so show.

Mr. Smith: That becomes plaintiff's exhibit what, Mr. Clerk?

Mr. Wittschen: I did not think the document was in. The document, as I understand it,—the details you put in were total costs; you have a contract price, so the Court can get the difference.

The Court: Yes.

Mr. Smith: That is all.

Plaintiff rests. [1907]

Mr. Wittschen: In order that your Honor may understand our position, it is our purpose to call just one or two witnesses on the issue of the right to rescind. We will call perhaps two witnesses, not to exceed that, and then submit that issue to your Honor on the merits, rather than move at this time for a nonsuit, because we prefer you to pass on the merits, and we will confine our proof to that particular issue. Then after the Court has indicated its ruling upon that issue such other steps will be taken as may be proper. If the ruling is in our favor we will then proceed to put in our proof as to the damages. Before, however, putting on our case there are certain motions relative to striking out certain exhibits which were reserved which I would like to make at this time.

Defendant moves first that there be stricken from the record in this case certain evidence introduced during the trial of the cause, namely:

(a) Plaintiff's Exhibit No. 22, the so-called Geological Report, and all testimony of the witness Larson and any other witness with reference to the reliance of such witness upon the statements of such report, particularly the statement of any witness that such witness relied upon such report in forming a conclusion that the ground through which the tunnel was to be driven would be self-supporting, and any reference that the bid of the plaintiff was based in whole or in part upon reliance upon such report.

(b) Plaintiff's Exhibit 23, map or chart copied from a map or chart on such Exhibit 22, and all testimony of any witness with reference to the same or that such witness relied upon such map or chart in forming any conclusion as to underground conditions or as a basis for the bid of plaintiff.

Said motion is made and based on the ground that the same is [1908] wholly incompetent and immaterial, and on the further ground that the Geological Report and any maps thereto attached are expressly excluded from consideration as a part of the contract, and by the introduction of said report and map plaintiff is attempting to vary the terms of the written agreement between the parties.

The grounds above stated apply to each of the motions above referred to.

I do not desire at this time to argue that matter, unless your Honor desires. I think we are correct in our legal position and it is all covered in the Points and Authorities which I have handed to your Honor.

The Court: You submit the motion?

Mr. Wittschen: Yes, your Honor.

Mr. Marrin: If your Honor please, it is our position that the Geological Report and the testimony with respect to reliance thereon, and all of the information which has been furnished by the defendant to the plaintiff is relevant and material and admissible in this case upon the following grounds:

1. There is in this case the issue raised of fraud, constructive fraud, and mutual mistake, and the

plaintiff in connection with that is entitled to show any representations which were made to it as an inducement to enter into the contract. It does not make any difference whether those matters are part of the contract at all, as it is clearly held by the authorities that on such issues any matter of inducement leading a party to enter into a contract is clearly admissible.

In the case of Ferguson v. Koch, 204 Cal. 342, the Supreme Court of this State said on this issue:

> "Parole evidence is always admissible to prove fraud, and it was never intended that the parole evidence rule should be [1909] used as a shield to prevent the proof of fraud. Hence, the fact that the sale of an automobile is evidenced by a written contract will not prevent the purchaser from proving by parole evidence that the sale was induced by fraud. And this is true, even though the contract recites that all conditions and representations are embodied therein. There is no such sanctity surrounding a writing that parties may not be permitted to go back of it and show that there was such fraud practiced in the procurement of the same as to vitiate the writing. The law never countenanced a rule which would deny to one the right to prove that fraud had been practiced upon him. In actions for rescission on the ground of fraud the statutory provisions that when the terms of an agreement have been reduced to writing such writing is to be considered as containing all the

terms, and that the execution of a contract supersedes all prior negotiations or stipulations, have no application and do not control. Appellant has cited us to certain earlier cases in our reports which he claims make a distinction between fraudulent representations going to induce the making of a contract and representations in the nature of warranties. There is no reason why any such distinction should exist, and, in fact, none does exist."

Now, in the line of Federal cases, also, if your Honor please, which we have cited in our opening brief, there are a number of cases where judgment was rendered in favor of the plaintiff contractor because of representations which had been made in drawings and borings which were outside of the contract but which were referred to and relied upon by the bidders in making their bid.

In the case of Passaic Valley Sewerage Commissioners v. Holbrook, Cabot & Rollins Corporation, the reference was to certain drawings purporting to set forth the result of certain borings, and [1910] there was no question but that those borings were admitted in evidence in that case, but the judgment turned on the fact that the borings which were not a part of the contract did not show the true conditions. Also in that case there was attached to the drawings the following note:

"The borings, soundings contour lines, profile, and indications of rock outcroppings, sub-

surface materials, pipes and other underground structures are supposed to be approximately correct, but should they be found to be otherwise the contractor shall have no claim on that account, it being expressly understood that the Commissioners do not warrant the plot to be approximately correct."

In reply to that, in replying to the contention of the defendant that because of such statement in the contract the defendant was not bound by the result shown on the map or on the drawing which purported to show what the results of the borings were, that court reviewed certain prior decisions of the United States Supreme Court as to the effect of the self-exonerating clause, and in that decision the Court said:

"The last case on the subject, and one containing facts which resemble closely those of the instant case, is United States v. Atlantic Dredging Co., where the self-exonerating clause in the contract there in question was similar to and just as strong as the clause here in question. In that case the Supreme Court, citing its previous decisions, announced the law that, when a governmental body has asked for bids for excavation work and has represented the condition of the material to be excavated, and in its representations had misstated facts, or has failed to state facts, within its knowledge, it cannot escape responsibility by a clause of

the contract in which it required bidders to examine the work for themselves and in which it said that its statements of facts were but expressions [1911] of its opinion and that it did not guarantee them. This, in effect, was a holding that representations made in such circumstances import a warranty, and also that, in consonance with familiar law, a person cannot contract against his own fraud."

The Court: For your comfort I will adopt that as the law for all purposes of this case.

Mr. Marrin: Yes, I would like to have you do so.

The Court: I will without any hesitancy.

Mr. Marrin: There is another point on which we think this evidence is admissible, if your Honor please, and that is on the question of extension of time. We have shown in this case that before entering into this contract the plaintiff made all of the examinations which it could reasonably be expected to make to determine the nature of the ground through which these tunnels would be constructed. As a part of the examination which the plaintiff made and as showing the diligence with which it went into the matter, it procured a copy of and studied the geological report which was prepared by the District and which was mentioned in the specifications, in addition to doing other things, such as specifically examining the ground, examining the test pit and other matters of that kind. Now, if the plaintiff has done everything reasonably possible to

attempt to ascertain the character of the ground here and the plaintiff was not able to, by such examination, determine the character of the ground, then that is part of the proof that the plaintiff was unavoidably delayed in driving the tunnels, and we also think that this evidence is admissible upon that proposition; whether or not the Court finds that the defendant in this case has been guilty of fraud or guilty of mistake, or whatever the decision of the Court may be, nevertheless the documents, themselves, are admissible as evidence tending to prove those facts. And upon [1912] those grounds we submit, if your Honor please, that this evidence which the defendant has moved to strike out should be left in the record.

The Court: As to constructive fraud I take it that is the geologist's report, for that reason your clients were misled?

Mr. Marrin: Yes.

The Court: What, if any other fraud?

Mr. Marrin: The geologist's report and the provisions of the specifications we contend led this plaintiff to believe before submitting its bid that the ground through which these tunnels were to be constructed would be self-supporting ground, which would permit of a certain method of construction.

The Court: I am just trying to crystallize the problem that I have to determine, namely, self-supporting ground and the geologist's report. Now, that is what we are discussing as to constructive fraud.

Mr. Marrin: And the specifications.

The Court: The specifications in what respect?

Mr. Marrin: In respect to the removal of timbers.

The Court: Removal of timbers. Have you anything else in mind?

Mr. Marrin: No, we have nothing else in mind than those matters.

The Court: Very well, that is clear. Now, with relation to your motion, does the matter stand submitted?

Mr. Wittschen: Yes. Does your Honor care to hear argument?

The Court: No.

CHARLES DERLETH, JR.

Called for the Defendant; sworn.

The Court: Professor, I have never had the pleasure of meeting you before, but I have observed you in court. Do you see the [1913] trouble that you have made in this Court by producing men in years gone by? A. I hope you will forgive me.

Q. However, you will feel comfortable and feel at ease.

A. I shall not do it very much longer.

Q. Some of them do not agree with you though all of them have profound respect for you.

A. They are very generous.

Mr. Tinning: Q. Professor Derleth, you were employed as a consultant by the District before any

(Testimony of Charles Derleth, Jr.)

plans were drawn for the project by the District, were you not?

A. Yes, I have been associated with the project from the very beginning.

Q. Were you present at a conversation held on or about the 21st of May, 1935, near the west portal of the tunnel, at which S. D. Bechtel, Mr. T. M. Price and District Engineer W. B. Boggs were present? A. I was.

Q. Will you state what, in substance and effect, was stated at that conversation?

A. Well, I had been in the tunnel during the morning with Mr. Boggs and sometime between 11 a. m. and 12 noon we came out from the west portal and were walking toward the offices of the Six Companies, and very close to the steps leading to their office, with Mr. Boggs, I met Mr. Stephen Bechtel and Mr. Price and I took at that time occasion to say to them that I was concerned that they were not proceeding promptly with the lining to follow the excavation in the two bores, that I thought it was a hazard not to proceed.

Q. What did you mean by the lining?

A. I meant the reinforced concrete lining in the horseshoe-shaped portion of the sides and the roof, the archway, of the excavation.

Q. Did you at that conversation hear anything said with respect to an extension of time?

A. No, I think not.

Q. Did you leave before Mr. Boggs?

(Testimony of Charles Derleth, Jr.)

A. I left shortly before noon, [1914] because it was my intention that morning to examine some of the approach structures, the concrete approaches on the Oakland end.

Q. When you left did you leave Mr. Boggs there with Mr. Bechtel and Mr. Price?

A. Yes, Mr. Boggs excused himself from me and I think I went with Mr. Barkley or Mr. Gelston—I left Mr. Boggs with Mr. Bechtel and Mr. Price.

Q. Do you know Mr. De Lancey Smith, one of the attorneys for the plaintiff in this case?

A. Yes, I know him very well.

Q. Did you know him in 1935?

A. Yes, we met frequently for many reasons.

Q. In connection with the Broadway Tunnel matters, or in connection with other matters?

A. I think it was about that time that we also met on questions concerning the Golden Gate Bridge.

Q. Did you meet with him respecting the Broadway Low Level Tunnel?

A. Well, Mr. Smith and I often meet while going to the City, we used to get on the Key Route train at Webster street and Claremont, or adjacent stations from Berkeley on usually Mondays or Wednesdays, when I was going to the City, Mondays to the Bay Bridge and Wednesdays to the Golden Gate Bridge, and we were friends, we used to talk together.

Q. Did you have a conversation with Mr. De Lancey Smith on June 15, 1935, and, if so, where did it occur?

(Testimony of Charles Derleth, Jr.)

A. At between 8 and 9 o'clock in the morning I boarded the Key Route Claremont train at Webster street and Claremont Avenue in Berkeley and Mr. Smith either was on the train or got on at that same station, and he came to me and he spoke to me about some of the problems that were worrying the contractor.

Q. When you refer to the contractor you refer to the Six Companies?

A. The Six Companies.

Q. Was there anyone else present at that conversation between Mr. Smith and yourself?

A. No, there was no one intended to be [1915] present; there were other people, of course, sitting nearby in the train or on the ferry boat.

Q. Now, will you state in substance and effect what Mr. Smith said to you and what you said to Mr. Smith respecting anything in connection with the Broadway low-level tunnel?

A. It is my clear recollection that Mr. De Lancey Smith told me that they felt that Mr. Boggs was not sufficiently cooperating with them on two counts, one that they wanted extensions of time, and the other that in their judgment he was not giving them sufficient engineering or lines and grades for the excavation of the two bores of the tunnel, and that he felt that something ought to be done whereby Mr. Boggs would be more cooperative.

Q. Did he state to you in that conversation that Mr. Boggs had promised an extension of time to the Six Companies?

(Testimony of Charles Derleth, Jr.)

A. No, it was my impression from that conversation that he hoped he would do so, and I thought, because of my friendship with the contractors, I assume that is clear, that I always wanted to help a contractor in his difficulties, that in my capacity as a consulting engineer I would do whatever was just to them and to the owner, in accordance with the contract and the specifications and plans.

Mr. Tinning: You may cross-examine.

Cross Examination

Mr. Marrin: Q. Mr. Derleth, you say that this conversation occurred on May 1, 1935?

A. The first conversation occurred near noon on May 21.

Q. May 21? A. May 21, 1935.

Q. And you had been in the tunnel with Mr. Boggs during the morning? A. Yes.

Q. When you came out you met Mr. S. D. Bechtel and Mr. Price at the [1916] steps of the job office?

A. That is correct.

Q. That was about eleven o'clock?

A. It was near noon, I think.

Q. Near noon? A. About 11:30, say.

Q. To whom did you make the statement that you were concerned about the concrete not proceeding?

A. The statement was intended to be made directly to Mr. Stephen Bechtel, who was the presi-

(Testimony of Charles Derleth, Jr.)

dent of the company, and Mr. Price was present, and heard what I said.

Q. Did you ever talk to either Mr. Bechtel or Mr. Price about this subject at any other time?

A. Yes, I think so; I began to think seriously about this question as early as, we will say, the 10th of March, 1935.

Q. I am not asking you when you thought about it, I am asking when you said anything to Mr. Bechtel or Mr. Price, and if you did will you please state the place, and who was present, and what was said?

A. Beginning in October, 1934, I made frequent visits to the tunnel.

Q. Will you just confine yourself, Professor Derleth, to answering the question I have asked you, and state any statement that you made to Mr. Bechtel or Mr. Price about keeping the concrete up?

A. All right, sir. Well, then, in February, and March, and in April, I met Mr. Price at least twice every month in the tunnel and he used to ask me frequently, particularly beginning in April, when would they get into better ground, and in those conversations I used to usually say, "I think you will get into much better ground in the cherts, and when are you going to begin the concrete lining?"

Q. That was the extent of the conversation?

A. Usually; we were very good friends, and I hope we are still. We always used to joke together.

Q. Why did you think they would get into better ground in the cherts?

(Testimony of Charles Derleth, Jr.)

A. In the months from October to, say, December, 1934, they had had soft ground in the portal, and it was their obvious hope to go to [1917] the full faced excavation, and as they proceeded through the Monterey sandstone they did finally get into much better ground, when they had more overburden, and they were approaching into the cherts, and it was my judgment and it has been settled in my own mind I was right, that they would reach better ground in the cherts, very much better ground.

Q. You stated you thought you had this conversation with Mr. Price in February of 1935. Do you recall how much ground was excavated in each tunnel in February, 1935?

A. My previous answer stated that the impression—when I stated we started in April, that I had begun to talk with him about the excavation in February.

Q. You did not have any particular comment on the concrete up till April, 1935?

A. No, I did not expect them to do the impossible, although you will recall that much earlier the construction program of the contractors had definitely stipulated that it was their intention to not be much more than six weeks at the most behind the excavation with their concrete.

Q. Which construction program are you referring to now, Professor? A. There are two.

Q. Which two do you refer to?

A. Just a moment. I made a memorandum from my daily records of these dates. I understand you

(Testimony of Charles Derleth, Jr.)

have already in evidence Exhibit N, which was the Six Companies' construction schedule of August 9, 1934; you proposed to start excavation on July 15, 1934 and your schedule shows that you intended to begin the concrete lining following the excavation on September 4, 1934, an interval, say, of six weeks; and the second schedule is Exhibit O, where you modified that program, dated February 12, 1935, and you extended your time particularly for completion.

Q. Now, I show you, Professor—I assume I may use our copy of the exhibit—a copy of Defendant's Exhibit O, which has been offered in [1918] evidence.

The Court: That was the last one?

Mr. Marrin: That was the one that was presented in February, 1935. I should like to ask you, Professor, after Exhibit N, the construction schedule of August, 1934, was given to the District, difficulties developed at the west portal, did they not?

A. Well, yes, if you call them difficulties.

Q. And the excavation in December of 1934 was obviously far behind what was projected on the construction schedule in August, 1934?

A. Yes. You were working on the excavation for a ventilating building instead of going into the tunnel.

Q. In December, 1934?

A. You started in October, 1934 and you went into the tunnel, in the portal in those last months of

(Testimony of Charles Derleth, Jr.)

1934, but you started your contract in July or June preceding; you were working all of that time, not on the tunnel, but on the area for the ventilating building. You were losing time there.

Q. You did not answer my question. What was the status and condition of the tunnel on December 5 of 1934?

A. Well, you had hardly started on the tunnels, you were working on the approach of the tunnels.

Q. As a matter of fact, Professor, the south tunnel had been excavated and concreted a distance of 92 feet, had it not?

A. Yes, about 100 feet.

Q. 92 feet, and the north tunnel had been excavated and concreted a distance of 110 feet?

A. That is about right, 100 feet.

Q. And the excavation was not ahead of the concrete at any point in the tunnels on that date?

A. Of course not, that is correct.

Q. So that obviously by that time the construction schedule, Exhibit N, could have no application, and the intention of the contractor as to the distance he was going to keep the concrete ahead of the [1919] excavation would have no bearing on the situation as it then existed?

A. That is true, but your construction schedule was in August, and at that time you were working on the ventilating building, and apparently it would seem to me you were changing your plan. That is all right. Therefore, later, when you did delay be-

(Testimony of Charles Derleth, Jr.)

tween July, 1934 till December, 1934 with prosecuting the tunnel excavation, you naturally changed your program. That is all right.

Q. That is your conclusion, that we delayed. However, I am simply bringing out the situation.

A. I did not say you delayed, but you changed the program. You had six months in which nothing was done in excavating the tunnel.

Q. Very well. Now, the next construction schedule was Exhibit O, which was submitted——

A. In February.

Q. In February. A. 1935.

Q. Will you point out on that construction schedule, Professor, the date upon which it says concrete lining was to start in the walls and arch.

A. Here, this one, May 1, 1935. That is correct.

[1920]

Mr. Marrin: Q. The excavation was resumed in the tunnel about the first part of December of 1934, was it not? A. Yes.

Q. So, the period shown on that construction schedule, the difference between the time of the recommencement of the excavation and the time when it was contemplated the concrete lining would start, was a period of 5 months and not of 6 weeks; isn't that correct?

A. Yes, that is all true; but you could not even begin your concrete lining; you did not have the concrete equipment in your bunkers until July 1, 1935.

Q. That may be true; but you mentioned a while

(Testimony of Charles Derleth, Jr.)

ago the time schedule which showed that the Contractor contemplated keeping the concreting up within six weeks of the excavations?

Mr. Wittschen: He was speaking of the other one.

A. That is from the schedule "N," I think. The fact is, to be explicit, that in the early part of your work, starting, say, with July, to December, 1934, it was a general understanding between the Contractor and the Engineer of the owner that you were going to keep your concrete lining promptly back of your excavation.

Mr. Marrin: Q. As a matter of fact, that was the plan of the Contractor to keep the concrete line up within about 300 feet of the face of the excavation?

A. Yes, that is correct, for the Contractor himself, I said, intended to keep his lining close to his excavation; but he never did it; and so, on May 21, 1935, I took it upon myself, as a friend, to say to Mr. Stephen Bechtel, as has already been testified, that I was becoming concerned that the linings were not being placed, and you were leaving the large bores of the tunnel open with just the timber holding the material.

Mr. Marrin: No further questions.

Mr. Tinning: Thank you, Professor.

The Court: They were not near as severe on you as I thought they would be. [1921]

The Witness: Well, I thank them and I thank you.

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Vol. VII

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

SIX COMPANIES OF CALIFORNIA, HARTFORD ACCIDENT AND INDEMNITY COMPANY, ET AL., PETITIONERS,

vs.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR CERTIORARI FILED JULY 22, 1940.

CERTIORARI GRANTED OCTOBER 14, 1940.

No. 9113

United States

Circuit Court of Appeals

For the Ninth Circuit.

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

Transcript of Record

In Eight Volumes

VOLUME VII

Pages 2369 to 2611

Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

PARKER PRINTING COMPANY, 545 SANSOME STREET, SAN FRANCISCO.

WALLACE B. BOGGS,

called by the defendants; sworn.

Direct Examination

Mr. Tinning: Q. Mr. Boggs, when were you appointed District Engineer of Joint Highway District No. 13? A. September, 1932.

Q. Have you continued in that position ever since that date? A. Yes, sir.

Q. Were you present at a conversation at the District office on pril 3, 1935, when Mr. DeLancey Smith, Mr. T. M. Price and yourself were the only persons present? A. Yes, sir.

Q. At that time and place, was there any discussion of an extension of time, between yourself and Mr. Smith and Mr. Price? A. No, sir.

Q. Were you present at a conversation at either Mr. DeLancey Smith's office or Mr. Paul Marrin's office in San Francisco on April 10, 1935, at which Mr. Smith or Mr. Marrin and Mr. Boggs and myself were present? A. Yes, sir.

Q. Was there any discussion of an extension of time at that meeting? A. There was.

Q. Who addressed the assembled gathering on behalf of the Six Companies?

A. Mr. DeLancey Smith.

Q. In substance and effect, what did Mr. Smith say to you with respect to an extension of time, or any other matters respecting the project?

A. Mr. Smith stated that it was probably the intention of the Contractor to present a request for

(Testimony of Wallace B. Boggs.)

an extension of time. I told Mr. Smith, at that time, that I did not think it was a proper time to present such a request, and, further, I knew of no reasons [1922] why the Contractor should be granted any extension of time.

Q. Was there any discussion of engineering at that meeting?

A. Yes. Mr. Smith brought up the matter of engineering, which had been the subject of some discussion prior to that time, and asked me what my thoughts were on that matter. I told him that that had been ruled upon before, and that my decision was still "No."

Q. Did you have any conversation with Mr. Smith at your office on April 15th or 16th, 1935?

A. No, sir.

Q. Did you have a conversation at any other place, in addition to your office, on or about April 15th or 16th, 1935?

A. No, sir.

Q. Were you present at a conversation held near the west portal of the tunnel on May 21, 1935, at which Professor Derleth, yourself, Mr. S. D. Bechtel and Mr. T. M. Price were present?

A. Yes, sir.

Q. At that time, what, if anything, was said with respect to an extension of time? Please give us, in substance and effect, what was said.

A. Mr. Steve Bechtel—

(Testimony of Wallace B. Boggs.)

Q. Mr. Boggs, in fairness, I think I should first state: you have heard Professor Derleth testify. It is true, is it not, that, before any discussion of extension of time came up, Professor Derleth had left the conference? A. Yes.

Q. Will you proceed with respect to discussing the conversation stating, in substance and effect what was said by the persons present,—Mr. Bechtel, Mr. Price and yourself,—at that time and place?

A. Mr. Steve Bechtel told me that he felt it was necessary for the Contractor to apply at this time for an extension of time. He stated that they were behind schedule and that he wanted to place an application for an extension of time before the District. I told Mr. Bechtel that I considered the placing of any request for an extension of time before the District at that time,—which was a year before the date of completion,—as being entirely premature, and, further, [1923] that I knew of no reason why the Contractor should have such an extension of time as that; I believed that I would recommend against it, if the Contractor filed such a report.

Q. What did Mr. Bechtel say to that?

A. Mr. Bechtel stated that he considered it necessary to apply at this time, at least to get the matter on record before the District.

Q. Do you recall a conversation between Mr. S. D. Bechtel, Mr. Kenneth Bechtel and yourself that occurred at the west portal,—at or near the west portal of the tunnel, a few days after Six Com-

(Testimony of Wallace B. Boggs.)

panies had submitted its request for an extension of time on June 10, 1935? A. Yes.

Q. Do you know the date of that conversation?

A. No; I do not.

Q. What was said at that conversation? Describe the circumstances under which it was held.

A. I met Mr. Kenneth Bechtel and Mr. Steve Bechtel near the west portal of the tunnel; I believe they were coming out of the tunnel, and I was on my way in to make an inspection; Mr. Kenneth Bechtel asked me if action had been taken upon their request for an extension of time; and I replied, in substance, that the request for an extension which had been filed a few days before was somewhat embarrassing to me.

Q. Did you have a conversation on November 19, 1935, in the office of Six Companies near the west portal of the tunnel, at which were present Mr. S. D. Bechtel, Mr. V. G. Hindmarsh, Mr. DeLancey Smith and yourself? A. Yes, sir.

Q. Will you state, in substance and effect, what was said at that conversation?

A. Well, that was a rather long conference, and there were quite a few matters discussed. I had been up into the tunnels, and, returning to my field office, I found a message there that Mr. Hindmarsh would like to see me at the Six Companies office,—their field office at the west portal. I went to the office, and [1924] I found there, in addition to Mr. Hindmarsh, Mr. DeLancey Smith and Mr. Steve

(Testimony of Wallace B. Boggs.)

Bechtel. Mr. Smith asked me what action had been taken upon their application for a 48-hour week for the employment of labor in the tunnel. I told Mr. Smith that the matter had been approved by the Bureau of Roads at some short time in the past, and that I had advised Mr. Price by telephone as to that action. Mr. Smith asked me if I would furnish a letter to the Six Companies advising them to that effect, which I told him I would do. There was then some discussion as to when this 48-hour week permit expired. I might say that, at that time, the Contractor was approximately at the end of the work for which that permit had been granted.

Q. That was the emergency work?

A. That was the emergency work.

Q. Catching up the cave-in of August 28th?

A. And catching up to the face of the excavation before new excavation could proceed.

Q. That is, catching up the concrete,—bringing it up?

A. Yes. This subject was discussed generally, and it was agreed that the Contractor would go back to the 40-hour week in the south tunnel, which was caught up, or would be caught up within a few days, and that, as soon as the north tunnel had reached some designated point, that they would then go back to the 40-hour week in that tunnel.

There was some further discussion as to the classes of employees coming under this designation of the 40-hour week which had been granted

(Testimony of Wallace B. Boggs.)

about a year before, and it was agreed that Mr. Bechtel, or that the Six Companies, at least, would write a letter to me designating just which employees were to be carried upon the 40-hour week as distinguished from the 30-hour week which applied to the outside work, and that I would submit that list to Mr. Sweetser of the United States Bureau of Roads, who represented the PWA, for his approval. [1925]

Mr. DeLancey Smith then brought up the matter of an extension of time, stating that the Contractor felt he should apply again for an extension of time; he said to me that he understood that, at the time the previous application was made, I had given as a reason for rejecting the same that the application was premature and asked me if I was still of the same opinion. I told him yes, and, further, that any new application which was submitted would have to be approved by the PWA, and should carry again a sufficient reason for any extension. Mr. Smith then asked me if I did not consider that the Contractor's difficulties experienced in driving the tunnel, the cave-in, the wet weather of the previous winter, might not change my opinion. I told him no, I did not consider that any of those matters were reasons for an extension of time for the Contractor. Mr. Smith said that he understood that that was my technical position, but perhaps that my position in this matter might be changed. I told

(Testimony of Wallace B. Boggs.)

Mr. Smith that I knew of no reason for granting an extension of time to the Contractor at that time.

Following that discussion—No; to go back: I also told Mr. Smith that inasmuch as the Contractor was behind again on the schedule which he had submitted in February, and I had in mind writing a letter requesting a new schedule, Mr. Bechtel, I believe it was, said that they would submit such a schedule shortly after the first of the year.

The Court: Q. That would be the third schedule?

A. That would be the third schedule, yes. They wanted to wait until that time because Mr. Hindmarsh, who was then superintendent of the work, had not performed any driving operations of the main tunnel, and they wanted to see what progress he could make.

Mr. Bechtel also said that they would like to submit their [1926] request for an extension of time at the time they submitted that schedule, and he asked me if I could not help them in preparing such a schedule and in thinking up some reasons which would not be controversial, by which I could possibly recommend an extension. I told him that I thought they had sufficient brains in their organization to think up their reasons, but that I would be very glad to cooperate in any way that I could.

There was then some discussion of actual construction problems, which I suggested Mr. Hind-

(Testimony of Wallace B. Boggs.)

marsh, the superintendent, take up with Mr. Gelston, the resident engineer, upon the work.

The Court: We will take a recess for five minutes.

(After Recess)

Mr. Tinning: Q. Had you concluded your discussion respecting the conference and conversation of November 19, 1935, Mr. Boggs?

A. No. There were a few other matters that were discussed. I asked Mr. Bechtel the status of Mr. Hindmarsh and Mr. Price, who had been project manager; and Mr. Bechtel told me that Mr. Price was still project manager but that Mr. Hindmarsh would be in charge of the actual field operations. I asked that a letter be given me so advising me and advising me how I should address my correspondence with the Six Companies. I think it was agreed that I would simply address it to the Six Companies direct, and that they would route their mail as they saw fit.

Following that, I took Mr. Bechtel and Mr. Smith —I drove them down to the train, and, on the way down and while waiting for the train, I asked as to the status of Mr. O. W. Peterson, who had been quite active formerly on the job and had frequently consulted with me. I was told by Mr. Bechtel that Mr. Peterson would continue in a supervisory or consulting capacity. [1927]

Q. Is that the end of the conversation?

(Testimony of Wallace B. Boggs.)

A. Mr. Bechtel told me that the Contractor desired to cooperate in every way to get the job finished as expeditiously as possible and that he hoped, if there were any questions or matters which arose between myself and members of the Contractor's organization, that I would not hesitate to take those matters up with him directly. I think that was practically all of the conversation.

Q. Did you have any conversation at that time, in December, 1935, with Mr. T. M. Price of the Six Companies, in which he discussed with you the question of the Six Companies requiring an extension, or, specifically, as to the grounds therefor, the time required for paving? A. No, sir.

Q. Did you have a conversation on or about January 22, 1936, with Mr. Hindmarsh at your office?

A. Yes.

Q. At that conversation, who was present besides yourself and Mr. Hindmarsh, if anyone?

A. Mr. Barkley, my chief assistant engineer.

Q. Was Mr. Ferneau present at any time while Mr. Hindmarsh was there?

A. Yes; Mr. Ferneau came in during the latter part of the conversation.

Q. Mr. Ferneau—what capacity did he have in this matter?

A. Mr. Ferneau had a somewhat dual capacity in that he represented the United States Bureau of Roads,—that would be the PWA,—as their inspector; and he also represented, or reported to, the

(Testimony of Wallace B. Boggs.)

Department of Public Works of the State of California.

Q. Will you now state what was said, in substance and effect, by Mr. Hindmarsh to yourself and, if Mr. Barkley participated in the conversation, what Mr. Barkley said?

A. Mr. Hindmarsh brought in a draft of a letter submitting a new schedule of operations for an estimated time of completion. It was a time schedule. Also included [1928] in that letter was a request for an extension of time to coincide with the date of completion shown upon the submitted schedule. I told Mr. Hindmarsh it was not in the form which I felt I could give consideration to an extension of time, in that it did not outline any detailed reasons but was substantially a blanket request such as had been submitted in the previous spring, without outlining any detailed reasons, and that I felt that, in order to properly consider—to have an application which I could consider, that they should outline, in detail, the reasons for which they considered they were entitled to such an extension, and that those reasons should set forth both the reasons for delay and also the amount of time upon each of the various reasons for such delay.

Q. Was such a letter, in accordance with your suggestion, later submitted by the Six Companies?

A. No; no such letter was ever submitted.

Q. Was anything more said in that conversation?

(Testimony of Wallace B. Boggs.)

A. Yes. Mr. Hindmarsh said that some of the reasons were the cave-in, the ground difficulties which they had encountered, the rainy weather of the previous winter and of the present winter; and he also asked me if the paving could not be completed due to a late spring—whether that would not be a good reason to put in. I told him that I was not going to pass verbally upon any reasons at this time, in view of the fact that some of my remarks in the past had apparently been misconstrued, and that I did not want to have any misunderstanding of my position; but that any application which was submitted would be carefully and conscientiously considered; and I suggested that he bring such an application in some time in April, prior to the time of the contract's date of completion in May of 1936.

Q. Mr. Boggs, at any time, from the commencement of the work by Six Companies under this contract up to the time that they left the [1929] work on June 13, 1936, did you state to any representative of Six Companies that you thought they were entitled to an extension of time?

A. No, sir; I did not.

Mr. Tinning: You may cross-examine.

Cross Examination

Mr. Marrin: Q. At the conversation which you held with Mr. Hindmarsh, Mr. Barkley and Mr. Ferneau, on January 2, 1936——

A. January 22nd, I think it was.

(Testimony of Wallace B. Boggs.)

Q. —January 22, 1936, you stated that Mr. Ferneau came in later? A. Yes.

Q. I understand, from that, that you and Mr. Hindmarsh and Mr. Barkley were present throughout the conversation? A. Yes.

Q. And Mr. Barkley was in hearing of the conversation? A. Yes.

Q. But Mr. Ferneau did not hear all the conversation?

A. No. I think he heard very little of it, if any.

Q. Did you state, at that time, to Mr. Hindmarsh, that you considered an application which would be made in January, 1936, would be premature, or words to that effect?

A. No. I told him I thought the proper time to put in such an application would be probably in April, shortly before the date of completion of the contract, which was the latter part of May.

Q. You recommended that he withhold filing an application until that time?

A. I did not recommend. I simply told him that I thought that that would be the proper time to put such an application in.

Mr. Marrin: No further questions.

Mr. Tinning: No further questions. [1930]

Mr. Tinning: We now submit our case on the issue of the right of the Contractor to rescind the contract.

Have you gentlemen anything further in testimony?

Mr. Marrin: In rebuttal on this issue?

Mr. Tinning: Yes.

Mr. Marrin: No. [1931]

Mr. Wittschen: The defendant now moves the Court for a judgment in its favor on the issue of the right of the plaintiff to rescind the agreement between plaintiff and defendant dated June 4, 1934, on the ground that the evidence will not support findings in plaintiff's favor and that there is no evidence sufficient to sustain a judgment in favor of the plaintiff on any of the two counts stated in plaintiff's complaint; defendant further moves the court for special findings of fact in accordance with the allegations of its answer in answer to each of the two counts stated in plaintiff's complaint.

Defendant further moves the court for conclusions of law that plaintiff take nothing by count one of the complaint and that plaintiff take nothing by count two of the complaint. Defendant further moves for judgment in favor of defendant separately on count one and separately on count two.

Defendant moves the court separately for judgment in its favor on the issues raised by the second separate and further defense to the first count of plaintiff's complaint, and for judgment in its favor separately for the issues raised by the second separate and further defense to the second count of plaintiff's complaint.

Defendant requests special findings on each and all of the issues raised by count one and count two

of plaintiff's complaint and of the answer of defendant thereto, which findings will hereafter be prepared and presented prior to the conclusion of the trial and will embody not only findings requested on the issue of the right of the plaintiff to rescind but upon each and all of the other issues raised by the pleadings.

Does your Honor care for any argument on that?

The Court: If counsel desires to argue it.

Mr. Marrin: I might say, if your Honor please, that this matter [1932] has taken us a little bit by surprise. In other words, the defendant said they would take eight or ten days in their case, and under the Federal procedure I rather take it that this, being a motion for judgment upon one of the issues after the evidence has been taken on both sides, that we should make a motion for judgment, ourselves, in order to make a record. Now, I have not prepared a written motion because I had not anticipated that that matter would come up for about two weeks.

Mr. Wittschen: Mr. Marrin, I did not mean to mislead you, but I think you misunderstood us. We think it will take about eight days to present our cross-complaint evidence if this issue is decided in our favor.

Mr. Marrin: I misunderstood counsel and I did not realize that the matter would reach this point at this time. Now, I can present the motion orally, but I would like the privilege of preparing the motion during the noon hour and submitting that.

Mr. Wittschen: I am frank to say, myself, I do not think this is necessary; it is the procedure fol-

lowed, but a very late case has come down reversing the Circuit Court of this Circuit just a little while ago, in which Mr. Alexander was counsel, stating that the case was still open until the Court signed the judgment, and even the direction of findings isn't a conclusion of the trial; but I certainly have no objection to your doing what we have done, and if you wish to make it orally you may do so.

Mr. Marrin: And it is stipulated that a written motion may later be made and substituted for it?

Mr. Wittschen: Yes.

Mr. Marrin: We would like to make a motion for judgment and request findings in order to protect our record.

At this time, if your Honor please, the plaintiff moves the [1933] court for judgment upon the following grounds:

1. That the evidence in this case shows that the defendant failed to make the progress payments when and as due, entitling the plaintiff to rescind the contract.

2. That the retention from the progress payments of the money which was due was a material breach of the contract which entitled the plaintiff to rescind.

3. That the plaintiff was entitled to an extension of time as of right and that the decision of the engineer in this case in denying an extension of time in view of the evidence in the record, was arbitrary, capricious, and wrongful, and that the evidence shows that the amount of the deduction was substantial and material, when coupled with the fact

that it would have amounted to the sum of $112,000 before the contract had been completed.

The plaintiff also moves for judgment in its favor upon the ground that it was misled in entering into the contract and that the defendant was guilty of representations amounting to fraud, actual or constructive, and further on the ground that the contract was entered into under a mutual mistake of facts as to the ground conditions, and that upon the evidence in this case the plaintiff was entitled to rescind, and is entitled to judgment, for the reasonable value of the work done. And we will, of course, present and request the Court to make special findings.

The Court: Is it now the wish of both sides that the Court rule?

Mr. Wittschen: It is the wish of the defendant.

The Court: Do you want to submit it on the record?

Mr. Wittschen: Yes.

Mr. Marrin: How does your Honor desire to handle it, by oral argument or briefs? [1934]

The Court: As to the procedure, I am of the present state of mind, if it will be helpful, that counsel go forward with his proof, whatever it may be. Unless I change my view, which is subject to change always, I will say there is not sufficient evidence in this record to respond to actual or constructive fraud, and I will so declare unless I am persuaded otherwise. Is that clear?

Mr. Marrin: You say there is not sufficient evidence?

The Court: I so declare now without ruling finally upon it, unless you want argument on it; if you want time to discuss that I will give you time.

Mr. Marrin: I think we should discuss the matter, if your Honor please.

The Court: Very well, proceed and discuss it.

Mr. Wittschen: Whom does your Honor wish to argue?

The Court: The one who has the laboring oar, your opponent.

Mr. Marrin: If your Honor please, this is the situation; I do not think that, and I am frank to admit, that we have shown any intentional misrepresentation in this case. I do think, however, that the record is sufficient to show that there was a situation here in which the facts as they were presented to the plaintiff when it submitted its bid were contrary to the facts as they actually existed.

The Court: It may be helpful, I will offer this suggestion, keeping in mind the evidence and law thus far gone into, where did the District fail to do its duty or measure up to its legal obligation, either on the factual side or the law side? I am saying that in order that it may be helpful.

Mr. Marrin: This is the view we take of it, if your Honor Please, the District in the specifications upon which they asked the contractor to bid, called attention to the geological report. [1935] Now, the apparent contention of the defendant in this case is that the plaintiff should have known, because of all the tunnels which had been built in this area,

that the ground at this point might be bad. However, the defendant apparently felt that it was necessary to make a particular examination of the specific ground at this site, and there is evidence in this record to the effect that the ground conditions in one tunnel, even though it may be only a short distance away, are not controlling of the ground conditions that may exist in another tunnel. The District did make an examination—it caused a geologist to make that—it had a report made, and that report said that for the most part the ground through which the tunnels would be built would be good from an engineering standpoint and would be self-supporting. The District had some purpose in having that report made, and in having that examination made. It had some purpose in drawing that report to the attention of prospective bidders, and while it disclaimed any guarantee of it or any liability for it at the same time it caused the information to be gathered, caused a report to be made and filed in its office, and it drew the attention of the contractor in this case to that report, and it was examined, and the evidence is that it was relied upon. Now, I think that from the specifications in this case the District probably also relied upon that report, although there is no direct evidence of it. The District provided in the specifications for the removal of the timbering and stated that the general intent of the specifications was that all of the timbering would be removed. This was a verification

of the facts which are set forth in this geological report. The District also provided for an A type and a B type of tunnel construction. It also provided for a tunnel which in its design had a very flat arch above the spring line [1936] or wall plate line which would withstand very little pressure from the outside at that point while excavation operations were being carried on. It also provided on the plan for batter posts, which indicated that no underground pressure was expected. These matters, if your Honor please, were representations which were made by the District to the contractor as to the conditions that would be encountered, and on that proposition we feel that if those representations were not true that under the decisions the defendant is responsible for them, notwithstanding any exonerating clauses which it might put in or any statement to the effect that it does not guarantee the representations. It is on that point, if your Honor please, that we feel that the District did make representations which make it responsible for any result.

Now, as to the ground, we have proved, and, as your Honor said, we built the tunnel twice—we have proved, I think without doubt, and it is not questioned, that the ground which was encountered was very different from anything involved in the geological report, diabase dikes, sandstone dikes, crushing, faulting and other conditions were encountered which were not mentioned or even intimated, which caused a great deal of difficulty in the

excavation and made the excavation much slower than it otherwise would have been. There is not any doubt in our mind, at least, that the statements made by Professor Louderback, while possibly not made with any intention to deceive, and we do not charge him with that, perhaps not made by the District with any such intention, we do not charge them with that, but they were nevertheless statements of fact which were contrary to the facts which were actually developed.

Now, it is our position that when the owner makes a statement of fact and the contractor submits a bid in reliance upon that, and that fact develops to be untrue, and it turns out that it injures the contractor, the contractor has a right of action for the [1937] damage which results therefrom; in other words, the owner assumes the liability.

It has been intimated here, and I think Mr. Wittschen stated if they had not disclosed the geological report they would have been liable. I do not agree with that, for the reason if the owner makes no representation at all and has in its possession information which indicates conditions more favorable than actually existed it could not be held liable for any concealment, because it has not concealed anything which would be detrimental to the contractor. But as the Circuit Court of Appeals said in this Circuit in the Sartoris Case, when an owner makes such statements, the owner makes them for a purpose, and the implication is that it is to influence

the bid, and having influenced the bid the owner is responsible for the results thereof.

That, briefly, if your Honor please, is our position with respect to the issue of constructive fraud, or mutual mistake, or whatever it may be, and whether it is constructive fraud or whether it is mutual mistake plaintiff, who is injured, is entitled to rescind on that ground.

The Court: I will say I realize how important a ruling is at this time, and for the reasons I have indicated my state of mind it was so that we would go forward with the trial.

Mr. Marrin: My associates draw my attention to the fact that I did not argue the extension of time ground, but I understood that your Honor wanted the argument simply on the question of the issue of fraud, but I would be glad to argue the other.

The Court: That is a factual situation, is it not?

Mr. Marrin: The extension of time?

The Court: Yes.

Mr. Marrin: Our position on the extension of time, if your [1938] Honor please, is, in the first place, that the engineer——

The Court: Pardon me, I want to be helpful to both sides. I have indicated my present state of mind. We can allow the record to stand and I will give you full opportunity to meet anything you have in mind in any reasonable time.

Mr. Smith: I suggest that we postpone this matter until two p. m. and then we will proceed.

The Court: I will do that, but my thought is to disclose my mind at this time, it would be better to go on with this case. From the standpoint of the record what is the immediate necessity for a ruling?

Mr. Wittschen: There is not any immediate necessity, except that we could not go on with our case, unless you ruled that the right to rescind is not present. Under the ordinary procedure I suppose they would go ahead now and prove their damages in some detail, and we would cross-examine on that report, that is, not on that report, but on that figure they put in evidence; in other words, they really have not concluded their entire case. They have concluded their case on what we think is decisive.

The Court: I was about to declare, both under the facts presented and the law as presented, you have not a right to rescind.

Mr. Smith: We have been here quite a while, and there is quite a bit of evidence that might have escaped our minds, and I think it would be helpful to review the evidence to you.

The Court: I do not want to deprive you of that opportunity.

Mr. Marrin: If I understand Mr. Wittschen's position correctly, it is this, that they have presented all the evidence which they intend to present at this time in defense to the plaintiff's case, with the exception that if we go ahead with our proof on the amount which we may be entitled to recover they, of course, reserve the [1939] right to cross examine and put in counter evidence on that issue.

Mr. Wittschen: That is partly true. I am going further than that. I made a motion earlier in the case and repeated it again in substance that there is no use of spending another week, at least, upon your damages if you have no right to rescind, because then that is immaterial, and that is precisely the way the case was tried, so that if the Court rules that you have no right to rescind I think that we would then try the cross complaint.

The Court: That is my present state of mind. I do not want to dispose of that without giving you a full opportunity to present it.

Mr. Marrin: I feel, if your Honor please, that if this matter is going to get down to an argument on the real merits of this matter that we should have over the week-end, at least, to prepare the argument and present the matter fully. It is very important. I do not quite appreciate Mr. Wittschen's position or the Court's position on the matter.

The Court: To be frank with you, I do not know the method or manner—I do not want to mislead anyone—probably counsel, here, are better acquainted with the situation than even the Court is. I usually meet any matter which is submitted to me after both sides have had a full opportunity to be heard. This case is important, and since I have declared my state of mind I still will leave it open only with the view that I want you to have a full opportunity to present the case.

Mr. Wittschen: What the Court suggests, as I understand it, Mr. Marrin, is this, that its present

state of mind is you have no right to rescind, but that is merely what you might say is a preliminary statement. It is not a ruling.

The Court: It is to arouse you to a great effort, so that if [1940] I am in error you will arouse me to withhold my present state of mind and change it, if possible.

Mr. Marrin: That is what we want to do.

Mr. Wittschen: I did not mean to spring any surprise. I thought that was understood. As you recall, on the first day—

The Court: I suggested, or I think I inquired when we first started in with the proof—I think counsel answered it—what was it you said?

Mr. Smith: I stated to your Honor I thought the case should first be disposed of on the complaint and answer before proceeding any further.

Mr. Wittschen: I do not object to your taking time to consider it until this afternoon or whatever time the Court wants to give you.

Mr. Marrin: It seems to me the matter has arrived at a stage now where the defendant has closed its case and your Honor's decision may entirely and probably will entirely determine the rights of the plaintiff so far as the plaintiff is concerned. Now, this is a long record, if your Honor please, there are some 1,600 or 1,700 pages of transcript. There is a lot of law on the subject, and I had misunderstood Mr. Wittschen's purpose, I thought there would be some two or three more weeks of trial at this time, and it would be my suggestion, in

view of the importance of this matter, to the plaintiff and to the defendant also, in view of our desire to present a complete argument on the law and the facts, that the matter be adjourned for some time and then if the Court decides we are entitled to rescind, I take it that it is useless for the defendant to go ahead with the cross complaint. If the Court decides, on the other hand, that we are not entitled to rescind, then there won't be any issue on the matter of damages, which will save about a week of the Court's time, and it will leave the matter clear for them to go ahead with their cross complaint. [1941]

The Court: Since I have declared in this case that I did not think you were entitled to rescind, with that thought in mind I will give you full opportunity to change my views.

Mr. Wittschen: I have no objection to your Honor giving them time until Tuesday, but as to its going over beyond that I personally am in this position. Miss Phillips, of the United States Attorney's Office, has been in two or three times to see me. The Judge who is coming from Illinois has a case of mine set which is going to take some time to try, and the understanding was that we would try it at the conclusion of this case, because they are bringing an assistant from Washington on it.

The Court: They are bringing one in a case I am to try.

Mr. Tinning: I have one other suggestion, it may not be pertinent, but it is very important, we have a very large force of District men whom the

District will have to hold until the remaining testimony is disposed of. Many of these have work they can go into, and we are having to hold them, and we desire very much to conclude the case.

The Court: That does not impress the Court very much.

Mr. Marrin: We are more or less in the same position.

The Court: Might I inquire, is there any hope of getting together if I dispose of this matter?

Mr. Tinning: We have been so far apart in the amount involved up to this date we have never discussed anything.

(After discussion.)

Could we have this program: Can counsel for plaintiff be ready to go forward on Tuesday, and if they desire to discuss any matters with us this afternoon we will be very glad to devote that time to it.

The Court: I think that will be satisfactory. I will continue the case until Tuesday morning at ten o'clock. [1942]

(The further hearing was thereupon continued until Tuesday, May 31, 1938, at ten o'clock a. m.) [1943]

Tuesday, May 31, 1938

Mr. Marrin: If your Honor please, at this time I should like to present a motion to strike.

Plaintiff moves to strike from the Record Exhibit "WWW," introduced by the Defendant (Transcript page 804) [page 1409 this printed record], being purported letter of regulations of Federal Emergency Administration of Public Works, containing Administrative Order of Federal Emergency Administration of Public Works Number 54, together with a letter from the Chief of the Bureau of Public Roads transmitting same, and also, a letter from one C. H. Sweetser transmitting same all of said documents having been introduced as one exhibit.

Also, Plaintiff moves to strike from the Record Defendant's Exhibit Number "0-4" (Transcript page 1458) [page 471 Book of Exhibits], being Grant Agreement between the United States of America and Joint Highway District No. 13 for a grant of money to construct the project of the Defendant District.

This motion is made upon the ground that the said exhibits have no relationship of any kind or character to the Plaintiff or to its relations with the Defendant under its contract with the Defendant, and on the ground that there was and is no privity of contract between the Plaintiff and Federal Emergency Administration of Public Works and said exhibits are not binding on Plaintiff, and upon the ground that Plaintiff had no notice of any kind

or character of the existence of any contract between the District and Federal Emergency Administration of Public Works until long after the contract between Plaintiff and Defendant was made; and that for these reasons the said exhibits were and are irrelevant, incompetent and immaterial and tend to prove no issue in the case." I should like to file that.

Mr. Alexander: The cross defendant surety companies make the same motion and upon the same grounds. [1944]

Mr. Wittschen: As far as the two letters are concerned which accompanied the regulations of the Public Works, that order that was promulgated, we only introduced those because counsel said "If you are going to introduce the order you might as well introduce the letter." We have no objection to the letters being stricken, as long as the order of the Department which stated how liquidated damages should be handled remains; in other words, it came to us in the form of a letter to Mr. Sweetser, who was representing them; it was accompanied by another letter, the exact tenor of which I do not now recall, to the effect that this order had been promulgated. We are only concerned with the order.

Mr. Marrin: The letter on its face shows the date on which it was received by the District.

Mr. Wittschen: We received that order before we exacted any penalties.

Mr. Marrin: You received the order in March, I believe, 1936.

Mr. Wittschen: And exacted penalties in June.

Mr. Marrin: Yes.

The Court: I suggest for the purpose of the record that the matter be submitted for determination.

Mr. Wittschen: Very well.

Mr. Marrin: If your Honor please, you recall I made an oral motion for judgment, and I would like to follow it with a formal written motion.

MOTION OF PLAINTIFF

for Special Findings of Fact and Conclusions of Law and for Judgment in its favor.

Plaintiff moves for judgment in its favor for such sum or amount as the Court shall find upon the evidence to be the reasonable value of the work and labor performed and contributed by Plaintiff prior to the date of rescinding the contract on June [1945] 13, 1936, on the following grounds:

I.

That the undisputed evidence in this case establishes substantial breaches of both express and implied conditions of the contract by the Defendant, causing great loss and damage to the Plaintiff in that Defendant failed to make payment to Plaintiff on June 10, 1936, of the money due Plaintiff from Defendant under the contract for work done by Plaintiff during the month of May, 1936, and by deducting from the money due Plaintiff the sum of $500 per day for each day after May 24, 1936, and thereby declaring its intention to continue to

breach said contract by failing to pay Plaintiff the amount due it under said contract if Plaintiff continued to perform same by further deduction of the sum of $500 per day until the work under said contract was completed on about the 3rd day of January, 1937, or a total deduction of $112,000.00, from money justly due Plaintiff under the terms of the contract, to Plaintiff's great injury and damage, thereby justifying its rescission of the contract.

II.

That the undisputed evidence establishes that the Defendant failed and refused to give to Plaintiff any extension of time within which to complete the performance of the work under the contract, and that such refusal was wrongful and illegal because Plaintiff had been unavoidably delayed in the performance of the work under the contract for a period of 300 days, or more, and had also been delayed in the performance of the work under said contract by reason of stormy or inclement weather, and had been delayed by operation of law, and Plaintiff was thereby justified in rescinding the contract. [1946]

III.

That the undisputed evidence in this case establishes a substantial breach by the Defendant of the contract in that the materials through and under which the tunnels were to be constructed were substantially different from those shown, or predicted, or represented in the geological report furnished to bidders, in the plans and specifications furnished to bidders, and in the contract and the specifications

forming a part thereof entered into; and made the performance of the work much more difficult and expensive than it would have been had the materials corresponded with the materials predicted and represented by and in the geological report and the contract, plans and specifications; and thereby the warranty contained in the contract and relied upon by Plaintiff in making same, as to the materials to be found through which the tunnels would be built, was breached to Plaintiff's great injury and damage.

IV.

That the undisputed evidence in this case establishes constructive fraud on the part of the Defendant in inducing Plaintiff to enter into the contract.

V.

That the undisputed evidence in this case establishes capricious and arbitrary conduct by the District Engineer of the Defendant in failing and refusing to determine and adjudge that Plaintiff was unavoidably delayed in the doing and performance of the work.

VI.

That the undisputed evidence in this case establishes that a gross mistake was made by the Engineer of the Defendant District in failing and refusing to determine and adjudge that Plaintiff was unavoidably delayed in the doing and performance of the work.

VII.

That the undisputed evidence in this case establishes that the [1947] Defendant breached the contract by failing and refusing to give Plaintiff proper lines and grades to work to in the construction of the tunnels.

VIII.

That the undisputed evidence in this case establishes that a mutual mistake was made by the Plaintiff and Defendant in entering into the contract in that Plaintiff and Defendant both believed that the ground through which the tunnels would be driven would be of self-supporting character for about 2,000 feet of the length of each of the tunnels; and both parties relied upon this fact in entering into said contract; and in truth and in fact the ground through which said tunnels were driven was entirely nonself-supporting, but required artificial support throughout before and during the lining of the tunnels with concrete to the extent that it was impossible to remove such artificial support, thereby causing Plaintiff great injury and damage.

IX.

That the undisputed evidence in this case establishes that Plaintiff relied upon the information contained in the various documents furnished to it by Defendant prior to bidding, including particularly the geological report, plans, and specifications, and planned the doing of the work covered by the contract in reliance upon the information so furnished that the ground through which the tunnels

would be driven would be found to be self-supporting for the most part; and by reason of the fact that none of said ground was self-supporting, Plaintiff was unable to construct the tunnels in accordance with its plans made in reliance upon the information furnished by the Defendant, thereby causing great injury and damage to Plaintiff.

Plaintiff moves for such judgment upon each of the two counts stated in its complaint and further moves the court for special [1948] findings of fact in accordance with the allegations of Plaintiff's complaint and each count thereof.

Plaintiff further moves the court for conclusions of law that Plaintiff is entitled to judgment on each count of its complaint for the reasonable value of the work and labor performed for, and material furnished to, Defendant under the contract between the parties dated June 4, 1934, and prior to the date of rescinding said contract on June 13, 1936.

Plaintiff requests special findings on each and all of the issues raised by count one and count two of its complaint and the answer thereto, which findings will hereafter be prepared and presented prior to the conclusion of the trial and will embody not only findings requested on the issue of the right of Plaintiff to rescind, but upon each and all of the other issues raised by the pleadings.

Mr. Alexander: I just want to say the cross defendant surety companies make similar motions and upon similar grounds.

Mr. Marrin: If your Honor please, with respect to the findings and the rather technical nature of the proceedings, I suggested the matter to Mr. Wittschen, and I believe we are in agreement—neither one of us wants to cut off any right—I would suggest the following stipulation, if it is agreeable to Mr. Wittschen, that it is stipulated that the trial shall be deemed to continue and be in progress until findings of fact and conclusions of law are presented by the parties and signed and filed by the Judge, as provided by Rule 42 of this Court, and that any opinion or order of the Court previous thereto shall be considered as merely preliminary, and as not terminating the trial, and that the cause shall not be deemed finally submitted for decision until such findings of fact and conclusions of law are so signed and filed by the Judge.

Mr. Wittschen: Except I would like the Court to make an interlocutory [1949] decree. In other words, we do not know how otherwise to proceed. I have no desire to impale one side or the other on any technical finding. We are willing to stipulate that in view of the fact that issues are still open on the cross complaint under my theory, that findings of fact and conclusions of law may be filed at any time after the Court has ruled on the cross complaint, but obviously we could not go ahead on the cross complaint unless the Court should conclude that Plaintiff had no right to rescind. If you have a right to rescind there would not be any cross complaint.

Mr. Marrin: My purpose in that is this. I understand that you desire the Court to make what you call a temporary interlocutory order, and I want to be certain that we are not precluded from thereafter presenting special findings.

Mr. Wittschen: I will so stipulate that you will not be precluded by any order the Court may make.

Mr. Marrin: That is satisfactory. With respect to the cross complaint, I spoke to Mr. Wittschen about this yesterday, and I think that the evidence which has been adduced on the complaint would automatically apply to the cross complaint, but both sides are agreeable that that be done, so that there will be no necessity of reintroducing a lot of evidence here, and I would suggest this stipulation on that, if agreeable, it is stipulated that the entire record already made in this case may be considered as applicable to the trial of the issues on the cross complaint and the answers thereto, as well as the issues on the cross complaint and answers thereto, subject to all motions, objections, and exceptions.

Mr. Wittschen: As I understand, that is agreeable. I suppose you mean by all the evidence you mean all pertinent evidence, because some might not be material to the latter issue. As I stand [1950] here I cannot think of any.

The Court: If there is any such, and both sides may present any further evidence.

Mr. Marrin: Any further evidence.

Mr. Wittschen: It is my understanding that any evidence that your Honor has heard is applicable to all the issues in the case wherever it is material.

Mr. Marrin: Is that agreeable, Mr. Alexander?

Mr. Alexander: That is agreeable to the cross defendant surety companies.

Mr. Wittschen: Your Honor, while I am before the Court might I make a request? When we set up our figures in our counter claim and cross complaint we had to set them up on the work already completed. Since then we have had an audit, and rather than file a new document, which I think would be confusing, I would like, with the consent of the Court, to take the original cross complaint and change the figures on the face, with counsel, and have the clerk initial the changes that we have made.

Mr. Alexander: I would feel, before acceding to that request, something should be said. If counsel proposes to make just little trivial changes, as a matter of courtesy, of course, that would be acceded to, but if it is something substantial I do not think it will be.

The Court: You would object to a couple of hundred thousand dollars?

Mr. Wittschen: It is $42,000.

Mr. Alexander: I want to have something to say about the $42,000, and we think that showing of $42,000 ought to be brought along the usual lines.

The Court: They may indicate how the figures are made up. [1951]

Mr. Wittschen: I will illustrate what I mean. For instance, we state the reasonable cost of completing the work agreed to be done was $1,725,000

even. Now we find that it is $1,751,611.74. We just want to put in the actual figures. In one or two places we have reduced them, but the net result is there is an increase of substantially $40,000 in the figures.

Mr. Alexander: Your Honor, as far as the original cross-complaint is concerned I do not think it states a cause of action under the contract or on the bond. It is a suit brought, among other things, for reasonable value, and the contract, itself, specifies in particularity how the amount of their damages, if any, are to be ascertained, and before your Honor makes a ruling on this, I would like to present that matter formally.

The Court: There is only $42,000. Both sides will have an opportunity to meet that. The only thing is instead of wanting to file a new cross complaint he wants to insert those figures.

Mr. Alexander: I do not think it is so simple. The filing of a new cross complaint will invite a formal attack upon it. This is not a case of a little courtesy, there is a substantial sum involved.

Mr. Wittschen: I am not asking for any courtesy. You have got me all wrong. I think we have a right to amend to conform to the proof after we put the proof in. What I was suggesting was that practically every figure that we have put in our cross complaint is changed, because we put them in more than two years ago, while the work was still in progress, for instance, we state in one that the cost of running the District was $288 a day, while

it is $278, and certain figures like that, we have had to change as time has gone on. For instance, we overlooked crediting the doing of certain work which had not gone far enough to be included in the [1952] estimate, this $2,800 they are credited with; in other words, instead of putting in a complete whole they put in a half whole, and that had to be finished. I am not changing a single principle. I am just striking out one figure and substituting for that figure another one. There are no changes made. I am perfectly ready and willing to meet Mr. Alexander on his claimed defense that it does not state a cause of action against the sureties at any time, and suggest that if you want to set it down for argument for two o'clock this afternoon we will be ready.

Mr. Alexander: It would be quite agreeable if some issue was presented.

Mr. Wittschen: There is no change of issues presented in any way. I was just trying to save time.

The Court: Your objection is not to the figures, then?

Mr. Alexander: No, but the substance of the entire cross complaint, and by acquiescing or being silent I might waive very substantial rights.

Mr. Wittschen: I understand you have a special defense in, to the effect that it was the District's obligation under its contract to do this work, itself, and not let it to rebidding, and also that you claim that the action was prematurely brought, because it

should have brought the cross complaint after the job had been finished, and on each of these special defenses we are prepared to argue at any time.

The Court: There is nothing at this time before the Court.

Mr. Wittschen: Shall this go over, then?

The Court: Yes, it may go over. There is one fact the Court has in mind, namely that this $42,000 in addition should be limited to the prayer of your complaint.

Mr. Wittschen: You mean by the prayer of the complaint? [1953]

The Court: Yes, this present pleading is an additional $42,000.

Mr. Wittschen: But this is not on any additional item. We are simply substituting other figures, we do not change any of the language. In one case we found, for instance, that we were deducting or attempting to deduct penalties twice; we had already retained 20 days penalties, so instead of charging them 433 days it should be 413 days; that is a reduction in their favor. It is just things like that, in checking over the complaint, that the figures should be changed.

Mr. Smith: As I understand it, the matter is over. You are not offering the suggested change now

Mr. Wittschen: Yes, I would like to do it. I would like to do it during the noon hour, change your complaint and change the one the Court has, if there is no objection, and substitute new figures.

Mr. Alexander: I certainly object to substituting new figures, in view of the fact that I do not think the cross complaint should be amended at all.

The Court: Are you prepared to argue that now?

Mr. Alexander: I would be glad to, but in order to argue it we have got to have something before the Court. I had assumed counsel would present a serious matter of that kind, involving $42,000, in new figures to which we could raise objection. $42,000 is a lot of money.

Mr. Wittschen: I will be glad to retype this whole thing over.

Mr. Alexander: I do not want to cause trouble to anybody, and the purpose of my objection is not to cause additional typewriting, because that entails work on my part, but I do want to reserve my rights.

Mr. Wittschen: Your rights will be all reserved, because I take it when we offer evidence of our damage you are going to object [1954] that the figures in the complaint were different from the ones we now put in. I am willing to put the evidence in and amend to conform to the proof.

The Court: The only thing we are concerned with for the moment is figures.

Mr. Wittschen: If you want to go to the merits I think that is all right. I assumed we were to go ahead with our cross complaint at this time, and counsel has indicated that they want to argue the matter, and if they are ready I presume that should be taken up now.

The Court: Very well.

Mr. Smith: We understood your Honor you did not care to hear argument on that, and therefore you were going to proceed with your cross complaint.

The Court: I indicated to you, if I remember, that both sides had been associated with this for the past two or three years. If you wish to argue this matter we can dispose of the matter.

Mr. Wittschen: I would like to have it disposed of.

Mr. Smith: We both said we did not feel we could do our clients and ourselves justice in preparing an argument between Saturday and Tuesday, in view of the length of the record, and the importance of the subject-matter, and the various exhibits, and your Honor, as I understood it, suggested that you did not desire to hear argument before the conclusion of the cross complaint, anyway.

Mr. Wittschen: I did not so understand it, because our time would be wasted.

The Court: The truth of the matter is if we are going to proceed here under the rule the Court must rule before I can entertain the cross complaint.

Mr. Wittschen: That is my understanding.

Mr. Smith: There is not any rule on it. [1955]

The Court: There is not any rule.

Mr. Smith: It is a matter of procedure, that is entirely discretionary with the Court.

The Court: It would seem reasonable that we could not proceed in the manner that you suggest before the major thing is taken care of, namely the

breach of this contract, and before we can proceed with the cross-complaint we must take care of that matter.

Mr. Wittschen: Unless there was a breach of the contract there could be no cross complaint.

The Court: If I thought otherwise there would be no need of wasting any further time.

Mr. Smith: We are in this position, that we tried to ascertain carefully from your Honor on Saturday—that was the purpose of our visit to you—the visit was suggested by Mr. Marrin and myself, and we advised counsel that we were coming up to see you for the purpose of finding out what your Honor's desire was as to further procedure, and also for importuning your Honor to give us a reasonable time in which to prepare for argument, if you would listen to argument.

The Court: I think I answered that by saying that no one at any time was ever denied an opportunity to be heard.

Mr. Smith: That is correct.

The Court: I think that was my language.

Mr. Wittschen: Now is your opportunity to be heard.

Mr. Smith: But we have made it very clear we could not in justice to the case present an argument in view of the length of the record this morning.

The Court: That would be true if you had not been wrestling with your problem for two or three years, the nature of the case, and the preparation for it during that period of time, with a full [1956]

day before that time; as to the facts and the law it seems to me that is a reasonable time. Now, is there any case in addition to those that you have cited that you have in mind that would change the situation?

Mr. Smith: Might I be permitted to confer with my associate? We will submit the matter without argument at this time.

Mr. Wittschen: We will submit the matter also.

The Court: What is the matter now before the Court, for the purpose of the record?

Mr. Wittschen: I take it the Court should rule upon a motion for judgment in the District's favor on the issues raised by the complaint and answer, that is to say, the right of the plaintiff to rescind the contract, if the Court rules in favor of the defendant in that matter then we should be ordered to proceed with the cross complaint.

The Court: Let the record show a ruling in favor of the defendant.

Mr. Wittschen: On the issues raised by the complaint and answer?

The Court: By the complaint and answer.

Mr. Smith: To which we except.

The Court: Note an exception.

Mr. Alexander: We also join in the exception. I don't know as we have to, but we do.

The Court: Let the record so show.

Mr. Smith: Will it again be stipulated as previously stipulated between you and Mr. Marrin that the time for presenting findings shall be in accordance with the rules of this Court, under Rule 42?

Mr. Wittschen: I stipulated it a little differently; in other words, that findings could be prepared after the Court had decided the issues raised by the cross complaint and your answer thereto.

[1957]

Mr. Smith: Yes.

Mr. Wittschen: And that you need not prepare findings now upon the matter upon which the Court has just ruled, on either side.

Mr. Smith: You have not prepared any?

Mr. Wittschen: I have not submitted any. I intend to submit them all at once. With that understanding I make a request for special findings.

The Clerk: Motion for judgment in favor of the defendant granted upon special findings to be presented and filed in accordance with Rule 42?

Mr. Wittschen: Yes.

Mr. Smith: The preparation of special findings is included in that order?

Mr. Wittschen: Yes, but the Court has directed the preparation of special findings.

The Court: Yes.

Mr. Wittschen: And submit them to the other side.

The Court: Yes, and give them an opportunity to amend.

Mr. Wittschen: I told Mr. Marrin that the State procedure in the matter would be agreeable to me, that is to say, we would prepare and serve them on you and file them with the Court. Is that agreeable?

Mr. Smith: Yes, we will have an opportunity to check them and present our findings.

Mr. Alexander: We wish to ask for special findings on all issues involved in the future proceedings as well as in the past proceedings.

The Court: So ordered. In other words, I do not want either side to waive any of their legal rights.

Mr. Wittschen: No. [1958]

The Court: You must keep within the rule, but if there is anything of any substance that either side has omitted, it may be brought up.

Mr. Wittschen: I think that stipulation covers it.

The Court. I think so. Proceed with the cross complaint. [1959]

WALLACE B. BOGGS,

Recalled, by cross complainants; previously sworn.

Mr. Tinning: During the three-day holiday, the certified public accountant's report which had been prepared during the last two weeks was served upon Mr. Boggs and myself; we only had an opportunity to examine it on Friday night, and it contains some matters that were not proper under our pleadings; in other words, the accountant apparently misunderstood our instructions and included in the cost of operating the District all of the costs of operating the District even though they were attributable to litigation; and, since we discovered that on Friday night, we put him to work and were promised

(Testimony of Wallace B. Boggs.)

a final report at one o'clock today,—the detailed schedules to support those items. I have here a copy of the final figures which I obtained at eleven o'clock last night, and I can proceed with this, but I cannot bring you his certificate to the schedules that support these figures until two o'clock this afternoon. I am ready to proceed with the schedules that I have here now but I cannot give you the certified public accountant's certificate.

Mr. Smith: Would it expedite matters to adjourn until two p. m.?

Mr. Tinning: Perhaps we can go ahead, and we can qualify Mr. Boggs. There are a number of things we can go right on with, and I think we can save time.

Mr. Smith: Well, we were hopeful of stipulating on some items there.

Mr. Wittschen: We have those items that you said you would stipulate on; but now we have Mr. Alexander's objection—

Mr. Smith: His objection does not go, if I understand it, to the fact; it goes to the right to receive the fact.

Mr. Wittschen: Yes, I understand that. [1960]

Mr. Smith: Is that correct, Mr. Alexander?

Mr. Alexander: Yes.

Mr. Marrin: From your own statement, Mr. Tinning, you could not very well proceed without the certified public accountant's findings.

Mr. Tinning: These figures are all based on his findings; it is the final work of getting his support-

(Testimony of Wallace B. Boggs.)

ing files. There are, of course, hundreds of items that have been used and we did not get those figures until last night. We will go ahead and if there is anything we cannot agree on, then we will ask for an adjournment until two o'clock.

Direct Examination

Mr. Tinning: Q. Mr. Boggs, you testified, on Friday, that you had been District Engineer of Joint Highway District No. 13 of the State of California since September, 1932, continuously up to this date?

A. Yes.

Q. It would follow, from that, that you were in charge in the preparation of the plans and specifications for the project of the District?

A. Yes.

Mr. Alexander: May I ask that the answer go out for the purpose of making an objection, your Honor?

The Court: Yes.

Mr. Alexander: At this time, your Honor, I think the objection should be raised that we were previously discussing, namely, that the cross complaint does not state a cause of action and cannot be maintained by the cross complainant. I am a little uncertain whether the question should be addressed to the particular issue before the Court, but I don't want to take any chance of waiving it.

Mr. Wittschen: Your Honor, we were about to qualify the witness to show he could have an opinion as to the reasonable value of [1961] completing the

work; and when we ask the ultimate question, I take it your objection will be timely.

Mr. Alexander: I thought that was what you were doing, but I did not want to take any chance. I might state, your Honor, our objection runs to the entire cross complaint and consequently runs to the taking of any evidence under it.

The Court: Very well. I think we should dispose of the question for the purpose of the record now. Proceed.

Mr. Alexander: Very well, your Honor. At this time, your Honor, we not only object to the question upon the grounds that I will state, but we move to dismiss the cross complaint of the cross complainant, Joint Highway District No. 13 of the State of California, the motion being made, so far as I am concerned, on behalf of the cross defendants surety companies. No doubt the other defendant will make an appropriate motion.

Mr. Smith: Yes.

Mr. Alexander: Along the same lines. The grounds of the motion are as follows:

That the cross complaint does not state a cause of action;

Secondly, that the cross complaint was prematurely filed in that the District's claim for damages and right to recover is based upon Paragraph 5 of the contract, Section 6Q, Subdivisions 1, 2 and 3 that I will specify. Paragraph 5 of the contract—it contains really two paragraphs, but I will refer

to them from time to time as Paragraph 5—or maybe I have not the right word—

Mr. Smith: "Article," I think.

Mr. Alexander: —Article 5 or Section 5 or Paragraph 5, reads as follows—

The Court: Pardon me. What page is that on? [1962]

Mr. Alexander: In the complaint?

The Court: Yes.

Mr. Alexander: It will be in the exhibit attached to the cross complaint.

Mr. Wittschen: Paragraphs XI and XII of your answer to the cross complaint.

Mr. Alexander: Your Honor, I was just referring to the contract itself, and a copy of it is attached to the cross complaint.

The Court: Yes.

Mr. Alexander: Have you the cross complaint there, your Honor?

The Court: Yes.

Mr. Wittschen: Mr. Alexander, not to interrupt your argument, but for the Court's information, Paragraphs XI and XII of your answer are typewritten out there.

Mr. Alexander: Reading Article 5 from the Contract:

> "That the second party—" that would be the Contractor (reading:) "—further agrees that if the work to be done under this contract and agreement shall be abandoned, or if this contract shall be assigned by the second party,

or if at any time the District Engineer shall be of the opinion, and shall so certify in writing to the said first party that the said work or any part thereof is unnecessarily or unreasonably delayed, or that the said second party is wilfully violating any of the conditions or covenants of this contract, or is executing this contract in bad faith, the said first party shall have the power to notify the said second party to discontinue all work or any part thereof under this contract, and thereupon the said second party shall cease to continue said work or such part thereof as said first party may designate, and the said first party shall thereupon have the power to place such and so many persons, and to obtain by contract, purchase or hire, such animals, carts, wagons, implements [1963] tools, material or materials, by contract or otherwise, as said first party may deem advisable, to work at and be used to complete the work herein described, or such part thereof as the agent authorized to superintend the same may deem necessary, and to use such material as they may find upon the line of said work and to charge the expense of such labor and material, animals, carts, wagons, implements and tools to the second party, and the expense so charged shall be deducted and paid by the first party out of such moneys as may be either due or may at any time thereafter become due

to the said second party under and by virtue of this contract or any part thereof.

"In case such expense is less than the sum which would have been payable under this contract, if the same had been completed by the said second party, the said second party shall be entitled to receive the difference, and in case such expense shall exceed the last said amount, then the said second party or its bondsmen shall pay the amount of such excess to the first party on notice from the said first party of the excess so due."

The Court: You have in mind a demand for that amount?

Mr. Alexander: It is not, your Honor, a case of a formal demand, just a formal demand, but if I can digress just a moment, I can give the authorities later on. It has been said a number of times that when the parties stipulate in their contract for the method of ascertaining the loss, if any, either way, —either a profit or a loss, —that that must be followed; and until there is an audit on the completion of the work and a determination of the amount and which way the balance lies, one way or the other, no cause of action has accrued to either of the parties—or, no cause of action has accrued, rather, to the owner. [1964]

Now, in connection with the provisions of the contract which I read, I want to read a portion of Section 6Q of the specifications. You will find it on

page 7; and passing over Sections 1 and 2, we will get to the pertinent part, Section 3, or Subsection 3 of the section of the specifications, which reads—There are provisions in the specifications somewhat similar to those which I read to your Honor which are in the contract, and then this:

> "In case such expense is less than the sum which would have been payable under this contract at the unit prices bid, as calculated from the District Engineer's final estimate if the work had been completed by the Contractor, then the Contractor shall be entitled to receive the difference, but in case such expense shall exceed the last said amount then the Contractor and his bondsmen shall be jointly and severally liable to pay the amount of such excess to the District on notice by the District of the amount of excess so due."

Now, we see from that this is not an ordinary contract where if there is a breach a cause of action arises. There is a specific provision in the contract of how the loss to the owner, if any, shall be ascertained, and it is specifically provided in the specifications and the contract that the owner shall go ahead, shall complete, shall determine the final estimate, and when all the work is done and, —then using the language of the contract, —"give notice to the second party or its bondsmen" which way the balance lies.

Mr. Wittschen: May I ask you a question, Mr. Alexander? The provision in the specification and the provision in the contract are substantially identical. You are not making any point on any difference of language——

Mr. Alexander: No, no; they are substantially identical. I [1965] read the portion of the specifications because that shows what is to be done: go ahead and get the final estimate and then determine which way the balance lies; if the District has made a profit, they must send a check to the Contractor; on the other hand, —which is the case here, —if the final estimate shows a loss, then give notice to the sureties or the Contractor, and, at that time, a cause of action arises, but not before.

Until the work was completed and the expense estimates as provided in the section of the contract and specifications, and until the plaintiff in this action, or the cross-defendant surety companies, were given notice by the District of the amount of the excess in excess of what it would have been if the Contractor had completed the work, no cause of action accrued to the District against the cross-defendant surety companies, or against the cross-defendant Contractor.

Another ground that I want to address to the Court at this time—I am not certain if it comes up just at this point, but it may facilitate matters later on if I make the point now: Section 4D of the specifications provides for liquidated damages at the

rate of $500 a day for delay in completing. That, we submit, is in conflict with Paragraph 5 of the contract. Paragraph 5 of the contract specifically provided how the amount of damages shall be ascertained if there is an abandonment of the contract, and I read, your Honor, just how it is to be calculated.

Now, Section 25 of the contract signed by the parties provides that in case there is a discrepancy or conflict between the specifications and the contract that the contract shall control. Here, the contract provides the particular means of ascertaining the damages, and therefore supersedes in a case of this kind the provisions for liquidated damages. The cross-complaint in this case, as your Honor [1966] will note, is based upon the reasonable cost of completing the work; and we submit cannot be maintained in this case. If it were a case of a contract that had been breached by a contractor, upon the breach such damages as the party sustained, the District in this case, it would give a right of action; but when we have a particular means of ascertaining the amount of damages, we are not interested in reasonable costs of completion at all, because the contract itself provides how the damage is to be ascertained, namely, go on and complete, get your final estimate of the Engineer, and then find where the balance lies.

I want to say, in passing, also, that the cross-complaint contains items of alleged claims for dam-

age, and claim that the District is entitled to liquidated damages. It is not entitled to these items They have put them both in, but it is quite apparent if they are entitled to liquidated damages—I don't think they are—they are not entitled to the other and vice versa.

Another ground which I want to call to your Honor's attention is this: that there has been a breach of the contract by the District in its method of completing. The District was given authority to complete on an abandonment, if there was an abandonment; I don't concede there was one, but for the purpose of my argument I am using that term; the District may proceed as provided in Paragraph 5, or Article 5, of the contract, and when that is analyzed it means that it must proceed with its own labor and not, as I understand from what has been said, by contracting the work to others. Let us read the pertinent part. Now, there is not any question that if the contract itself provides a method of completing, it is a breach of the contract on the part of the District to proceed otherwise; and if there is such breach, it precludes the District from recovering [1967] damages. I think when you analyze this paragraph it means that the District may by contract obtain materials and tools and vehicles, but the work is to be done by its own labor and not, as I understand, by contracts. This particular phase of the argument may be a bit premature, but I will

follow it up, because we will meet it later on, I am sure.

(After Recess)

Mr. Alexander: Continuing, your Honor, with the grounds of the motion, I have noted that in setting forth my grounds I have interspersed a bit of argument from time to time, but I know you will forgive me. At the conclusion of stating the grounds, I will proceed to the argument and refer to the authorities.

The Court: Very well.

Mr. Alexander: I want to say one thing in passing and in stating my grounds: The point I stated in regard to prematurity, when there is a specific provision in the contract, has been commented on in the Circuit Court of Appeals of this Circuit; and it points out that a clause of that kind is to make the contract definite and certain and to rescue the case from the uncertainty and speculative control of expert witnesses.

Mr. Wittschen: You did not give us the case.

Mr. Alexander: I will give it to you presently; I will give you them all afterwards. I mean to say there is a real reason for a clause of that kind. Everybody knows where they stand; and we do not have to have testimony of experts to determine the reasonable cost, what is or what is not reasonable cost; but we have a fixed standard.

Passing on the next ground of the motion, there is another reason why, under the contract, the Dis-

trict may not prevail on this [1968] cross-complaint, and, namely, it is the District, as I understand the proof that it tends to offer, completed the project by independent contracts; they made contracts, —a number of contracts; whereas the provision here, as I read to your Honor, means, as I understand it, that the District shall complete with its own labor; contracting to get tools and implements, —using the language that they have used, —and to charge the expense of such labor, materials, animals, carts, wagons, implements and tools to the second party. When you analyze the provision on which they made that, you will see the only thing that they could contract to complete the job is for the obtaining of materials, tools and equipment; but the balance is to be done by, —using the peculiar language, —"placing such and so many persons" on the job.

Now, I want to call your Honor's attention to abandoning, and the points that I have been making in that regard, particularly the first point, the prematurity point, the contract providing how the measure of damages shall be ascertained, and, until the contract is completed and until under the specific provision the final estimate is made by the Engineer and the balance struck, no cause of action arises. Now, we have here a cross-complaint on file in December, 1936. The project was not completed until twelve months after that time, showing that a whole year the action was premature.

I also point out another reason why the cross-complaint cannot be maintained: The cause of action had not matured at the time the cross-complaint was filed; but the cross-complaint was chucked in, —pardon me for that expression, —and they had some seventeen parties defendant: the District and 16 sureties on this, their independent cause of action against the sureties and against the Contractor, that we are about to proceed on. [1969]

An analysis of the complaint will show there is no jurisdiction in this court to entertain a cross-complaint against two of the defendants who are residents of the State of California, —the Fireman's Fund and Pacific Indemnity Company; so the Court is lacking in jurisdiction to entertain the cross-complaint.

Another provision that I am urging, which, of course, is only on behalf of the sureties; the provision for liquidated damages does not apply to the sureties.

Paragraph 5 which I read before provides that after the balance is struck, then the second party, —that would be the Contractor or its bondsmen, —shall pay the amount of such excess. In other words, they contemplate that, on abandonment of the contract, the damages shall be estimated or ascertained in this way: the sureties shall be notified and, —according to the language, —they shall pay the excess but not liquidated damages.

I want to urge further, in support of grounds for these motions, all of the grounds that were urged heretofore in support in our joining the motion of the plaintiff for judgment.

Here follows the argument of Mr. Alexander in support of his motion which has been omitted by stipulation. [1970]

Mr. Smith: We wish to join in the position and all of the positions taken by counsel for sureties, except one, but before doing that it occurs to us that several points in the record are not clear at this time, that we think should be cleared up. There has been no determination by the Court upon the motion made by plaintiff to strike certain evidence of the defendant. The motion was merely submitted, and, as I understand it, there was likewise no ruling by the Court upon a similar motion made by the defendant as to certain evidence introduced in behalf of the plaintiff, so that the record is not clear as to the Court's action on either of those motions at this time. Also there was no determination or ruling by the Court upon the motion that we made, both on Friday last and this morning, asking the Court for a declaration of judgment in our favor and for a declaration of law in our favor, and the record shows no action taken upon those matters, so I think the record should be cleared up in that respect before I discuss this objection that Mr. Alexander has made.

Mr. Wittschen: Mr. Smith, don't you think when the Court directed judgment for the defendant on the main issue that that was a denial of your motion on the main issue?

The Court: No, the record does not disclose it. The Court is prepared to rule. There is a denial of the motion now so that the record will be clear.

Mr. Smith: To which we note an exception.

Mr. Alexander: May we also except?

Mr. Smith: With regard to the motion to strike, they call for a separate and independent ruling.

The Court: Yes. Have you summed them up? [1983]

Mr. Smith: Yes, we filed a written motion to strike.

The Court: I want an opportunity to check it and I will rule at two o'clock on that, unless there is some particular thing you want to call the Court's attention to.

Mr. Wittschen: All you want is as to the P.W.A. contract?

Mr. Smith: Also we want a ruling upon the motion made by you in an attempt to strike some of the evidence.

Mr. Wittschen: We moved to strike out. There has been no ruling. I don't care whether the Court rules on it. In other words, it was a motion to strike out the geological report, Exhibit 22, as I recall it, and a map that immediately followed, which was a tracing that the witness Calhoun made therefrom,

Exhibit 23; my memory of those exhibits may be faulty, I think they are correct, and I will check them.

The Court: Check on them. I will take up any motions at two o'clock either side may want to make.

Mr. Smith: We also desire to present some further argument on the objection which Mr. Alexander made.

The Court: We will be in recess until two o'clock.

(A recess was here taken until two o'clock P. M.)
[1984]

Afternoon Session

Mr. Smith: The Court indicated just prior to the 12 o'clock adjournment that it would rule on the various motions to strike, on which there has been no ruling as yet, and we think that that ruling should be made so that the record will be clear.

The Court: Have you checked up?

Mr. Wittschen: Those are exhibits 22 and 23, the only two that we made any motion with reference to.

The Court: Those are the two that you had in mind, the geologist's report, and what is the other?

Mr. Wittschen: And the map that was attached to it, from which the tracing was made.

The Court: For the purpose of the record I will grant the motion.

Mr. Smith: To which we note an exception.

Mr. Alexander: We also except.

The Court: Note the exception.

Mr. Smith: Then there is a motion by the plaintiff to strike certain of the defendant's evidence.

The Court: That is so general I do not recall what it was.

Mr. Smith: If your Honor please, it concerns the P.W.A. regulation which was sent by Washington to the District two years after the contract was entered into.

The Court: Pardon me, but didn't you make a typewritten statement?

Mr. Marrin: I made a typewritten statement.

The Court: Get it for the record.

Mr. Smith: Plaintiff moves to strike from the record Exhibit WWW, introduced by the defendant (Transcript page 804). [Page 1409 this printed record.] [1989]

The Court: Let us check that, what was that?

Mr. Smith: Being a purported letter of regulations of the Federal Emergency Administration of Public Works, containing Administrative Order of Federal Emergency Administration of Public Works No. 54, together with a letter from the Chief of the Bureau of Public Roads transmitting same, and also a letter from one C. H. Sweetser transmitting

same, all of said documents having been introduced as one exhibit.

Mr. Wittschen: Let us take that up.

Mr. Smith: Our ground on both of these is the same. Both of these are in the same category, as I understand the motion, so I would like to have it extend to both of them.

The Court: There is no privity of contract, here, is there?

Mr. Wittschen: There is in this way, the specifications, the supplemental specifications state that the contractor would agree to all of the rules and regulations heretofore or hereafter promulgated. Then in addition to that we have shown it by the testimony of Mr. Price, showing it with the testimony of Mr. Stephen Bechtel, and in fact it is in evidence that the P. W. A. inspectors were always present at all of these conversations. So we contend that in the face of their acquiescence all the way through to P. W. A. inspection, to asking us to get the P. W. A. to change the hours of labor and to change other matters, and particularly in view of the fact that our specifications provide that they would be bound by the P. W. A. regulations, that that regulation of the P. W. A. which referred to the withhold penalty was a regulation by which we were bound and they were bound; and that there is privity of contract by reason of the reference to it in our specifications. What I did say when we made the offer was that we did not care anything

about the letter of transmittal nor the letter of Mr. Sweetser. [1990] There was a letter from Washington to Sweetser and a letter from Sweetser to us. We do not care anything about those. Mr. Smith asked if we would not put the letters in too because they fixed the date.

Mr. Smith: The merits of the motion are not directed to those two letters.

The Court: The record is here and I suggest you indicate for the purpose of the record the purpose of the offer, so that it will be cleared up.

Mr. Smith: Also plaintiff moves to strike from the record Defendant's Exhibit No. 0-4 (Transcript page 1458 [Page 471 Book of Exhibits], being grant agreement between the United States of America and Joint Highway District No. 13 for a grant of money to construct the project of the defendant District.

This motion is made upon the ground that the said exhibits have no relationship of any kind or character to the plaintiff or to its relations with the defendant under its contract with the defendant, and on the ground that there was and is no privity of contract between the plaintiff and Federal Emergency Administration of Public Works and said exhibits are not binding upon plaintiff, and upon the ground that plaintiff had no notice of any kind or character of the existence of any contract between the District and Federal Emergency Administration of Public Works until long after the

contract between plaintiff and defendant was made; and that for these reasons the said exhibits were and are irrelevant, incompetent, and immaterial, and tend to prove no issue in the case.

Mr. Alexander: The cross-defendant surety companies make the same motion upon the same grounds.

Mr. Wittschen: The purpose of the offer of these exhibits in each case is to show and rebut the claim of the plaintiff that the District acted arbitrarily in deducting the penalties, and that the [1991] District also delayed the work in refusing to give permission to the changes, particularly with reference to the dropped sections, and those two documents show that the United States Government was interested in the project, that it had contributed a certain sum thereto in excess of one million dollars, that no changes could be made in design without the consent of the P. W. A. authorities, which were being administered locally through the Bureau of Public Roads and the documents were admitted to show that the District acted as it did by reason of those matters and things, namely, that the Government was interested and also that their introduction is justified by a provision in the specifications, an amendment and supplement to the final specifications dated January 9, 1934, which reads as follows:

> "Attention of all bidders under these specifications is called to the fact that since the adoption of the final plans and specifications for the project of Joint Highway District No.

13 on the 30th day of March, 1933, and the approval thereof by Earl Lee Kelly, Director of the Department of Public Works of the State of California on the 5th day of April, 1933, the President of the United States has approved the National Industrial Recovery Act and in accordance with law has created a Public Works Administration and a special Board for public works, and that said National Industrial Recovery Act and the rules and regulations approved by said special Board for public works required consideration by bidders in submitting proposals under said plans and specifications.

"The attention of all bidders is hereby specifically called to Bulletin No. 2 of Federal Emergency Administration of Public Works entitled 'General Information and Instructions for the Guidance of State Advisory Boards and State Engineers (P.W.A.).' A [1992] grant of thirty (30) per cent of the cost of labor and material used in the project of the District has been made by the Public Works Administration of the United States under the terms of said National Industrial Recovery Act, and all bidders are hereby advised that the Directors of the District will cooperate with the Public Works Administration and all its officers and employees in the enforcement of all of the provisions of said National Industrial Recovery Act, and the rules and regulations heretofore

and hereafter promulgated applicable to the performance of the work on the project of the District."

And it is by reason of that provision that we claim that these are tied in.

Mr. Smith: At the time the offer of these documents in evidence was made by the defendant through its counsel and the witness we objected on the ground that there is absolutely no privity of contract between Six Companies of California, the plaintiff in this case, and the P.W.A., and that these clauses which counsel has directed to the attention of the court have to do entirely with labor conditions on the work, and the reference that he has made is to the National Industrial Recovery Act and the conditions of employment of men and things of that sort were involved, and we concede that they were, but there is absolutely no mention of any kind or character at any place in the testimony in this case, or in the exhibits in this case, of any facts which drag into the case any document exchanged between the District and the Bureau of Public Roads as agent for P.W.A., or P.W.A. advice, and that on the P.W.A. the objection is presented on the ground that the evidence is all hearsay as to this plaintiff, not binding upon it in any manner, not within any issue framed by the case, and therefore is absolutely immaterial, irrelevant, and incompetent. [1993]

Mr. Wittschen: These rules not only cover the rules for labor but the rules and regulations heretofore and hereafter promulgated applicable to the performance of the work on the project of the District.

Mr. Smith: The performance of the work has to do with labor.

Mr. Wittschen: The Six Companies recognized the P.W.A. authorization was necessary for this dropped section, and in fact they were told if they went ahead with the dropped section it would be at their own risk, in the event the P.W.A. did not approve it, so I think the P.W.A. control is pretty well sticking out throughout this case.

Mr. Smith: We do not concede the accuracy of the statement made by counsel as to the effect of the evidence, without impugning his statement as being what he thinks the evidence shows. We did not at any time admit the P.W.A. had any jurisdiction over anything in this case, except hours of labor, and the mere fact that the District saw fit to run over to the P.W.A. to get permission to do anything does not bind us at all; if they wanted to do it it was because they wanted to do it for their own purpose, and not for anything with respect to us.

The Court: The Court is prepared to rule if both sides are satisfied with the record.

Mr. Wittschen: Yes.

The Court: The Court will allow this testimony and limit it to the offer which is disclosed by coun-

sel, and it may or may not measure up to the privity of contract of Six Companies. It is my present thought, however, when it was admitted it was for the purpose that counsel has indicated and with that limitation the court allows it.

Mr. Smith: I take it your Honor's statement amounts to a statement of a denial of the motion to strike the evidence. [1994]

The Court: The motion will be denied.

Mr. Smith: To which ruling we take an exception.

Mr. Alexander: We also except.

Mr. Smith: Now, referring to the cross-complaint which is before your Honor at this time, the situation procedurally is this, the cross-complainant District, defendant in the principal case, is now seeking to establish by proof its right to recover on the allegations made by its cross-complaint. The cross-defendants, the surety companies represented by Mr. Alexander, have made to your Honor a motion for a dismissal or at least a motion equivalent to dismissal of that cross-complaint. We join in that motion.

We move for a dismissal of the cross-complaint on the ground that it was prematurely filed and there is nothing before the Court in connection with same, and that the filing cannot be cured at this time.

We further move for a dismissal of the cross-

complaint upon the jurisdictional point that there is no diversity of citizenship thereunder.

The Court: As to two of the sureties.

Mr. Smith: Two of the sureties are alleged in the cross-complaint to be residents of the State of California, and that creates no diversity of citizenship.

Then we also desire to supplement the argument made by Mr. Alexander upon the objection raised that the cross-complaint does not state a cause of action under any consideration. [1995]

Here follows the argument of Mr. Smith in support of his motion and the argument of Mr. Wittschen for defendant and cross-complainant in reply to the arguments of Mr. Alexander and Mr. Smith, which arguments have been omitted by stipulation. [1996]

The Court: Is the matter submitted?

Mr. Wittschen: It is submitted.

The Court: With the exception of the two sureties, which have not been covered, the Court at this time is prepared to deny the motion on the cross-complaint.

Mr. Alexander: Would your Honor wait for the authorities that Mr. Smith is going to present?

The Court: The authorities that you spoke of?

Mr. Alexander: That Mr. Smith spoke of in regard to jurisdiction.

The Court: I have indicated that I would not rule on the two sureties, that is to say I have not

decided in relation to jurisdiction as to the two sureties. I will hear you tomorrow as to that.

Mr. Smith: Then it is understood that none of the matters have been denied?

The Court: The motion to dismiss will be denied with that exception. You can present any argument or any authorities on that tomorrow morning. I am indicating that ruling now solely that we can go forward. Here we have spent another day. I realize it is important to both sides, but I am going to warn you now that unless I change my views, unless there is something in the jurisdictional question, if I have not acquired jurisdiction over those two it follows that I have no jurisdiction over them. They are jointly and severally liable is my own thought, and at least I have jurisdiction over those. As to whether the two other sureties are liable [2045] I am not prepared to rule.

Mr. Tinning: I understand you do not object to presenting authorities with reference to the question of jurisdiction?

The Court: No.

Mr. Tinning: Otherwise you are ready to rule?

The Court: Yes.

Mr. Smith: I suggest for the clarity of the record that you withhold your entire ruling on the matter.

The Court: Very well. I wanted to warn you so that you will know my state of mind.

Mr. Alexander: There is no ruling?

The Court: There is no ruling as to those two. I want argument. You requested time until tomorrow morning to present argument on that. On the case as presented it is my present thought that on the proceeding here that I have jurisdiction of the non-resident foreign corporations, and I am in doubt about the two. The only reason I am in doubt about that is if I have not jurisdiction over those two I have no jurisdiction over any of them.

Mr. Smith: That would be the rule in the State Court, and I take it it applies to a cross-complaint here.

Mr. Wittschen: Might I make this observation, even though the motion was granted we could cross-complain against the Six Companies and you would have to hear the evidence on that, even if all of the sureties went out.

Mr. Smith: If all of the cross-defendants are subject to the ruling you cannot cure it by a dismissal as to resident defendants.

Mr. Wittschen: No, but if we have no jurisdiction over them we have jurisdiction over you.

Mr. Smith: If you had limited the filing of the cross-complaint in that manner, yes, but in view of the fact you have not, no. [2046]

Mr. Wittschen: We will look that up, because I don't know anything about it now.

The Court: We may make some headway here so that we won't spend any time on it tomorrow.

Mr. Smith: I take it your Honor has kept open your ruling on all of the features of these motions.

The Court: Yes.

Mr. Smith: And the objection that the cross-complaint does not state a cause of action?

The Court: I have only indicated what I have so as to warn you of what I am going to do tomorrow morning, for the purpose of being able to go on. My present state of mind is that I shall deny the motion to dismiss.

Mr. Smith: Also in addition to the motion to dismiss there was objection made to the introduction of evidence on the ground that the cross-complaint does not state a cause of action.

The Court: I will rule on that tomorrow morning. The only thing I am in doubt about is the jurisdiction of the two sureties, and then I may be in error, but you will have a record, as I have indicated to you previously, that you can comfort yourself with. We will take an adjournment now until tomorrow morning at ten o'clock.

(An adjournment was here taken until tomorrow, Wednesday, June 1, 1938, at ten o'clock a. m.)

[2047]

Wednesday, June 1, 1938
10 o'Clock A. M.

The Court: You wanted an opportunity to be heard this morning, if my recollection is correct.

Mr. Smith: Your Honor, the point we were discussing when we closed last evening was the question of jurisdiction.

The Court: Yes; and you asked for more time, if my memory is correct, for a search of the authorities.

Mr. Smith: We are satisfied our point is well taken, but we will submit it on the statements made yesterday.

Mr. Wittschen: Don't you agree, Mr. Smith, after that search of the authorities, that if there is a severable proceeding against citizens of the state they may be dismissed from the case and the action proceed as to the others?

Mr. Smith: I wouldn't say that I would agree to it.

The Court: I have thought about it almost up to sunrise this morning. I suggest this, if agreeable to both sides and in order to protect the record, I will deny the motion at this time with the understanding you may renew it at the conclusion of the case and then we will have the evidence in the record.

Mr. Wittschen: Put the evidence in, and then at the conclusion of that evidence such motions as——

The Court: You may renew your motion, if that is agreeable. If you insist on it, I will rule upon it now.

Mr. Smith: Well, the procedure of it is entirely up to your Honor. We raised the point, and we submit it to the Court.

The Court: Very well.

Mr. Wittschen: I looked into the matter, and it is my present view,—I did not know much about it last night,—that so far as the two California defendants are concerned, if they impair the [2048] Court's jurisdiction, they may be dismissed from the case, and as long as all the other parties are noncitizens of this state the action may proceed as to them. I call your Honor's attention that the bond specifying each surety takes a separate share of the liability, one for 4 per cent and one for 7 per cent; so undoubtedly the action could proceed as to the others. By reason of the press of time, I am not so sure we have exhausted the authorities on the subject, and I am still having those looked up; so, if your Honor does proceed with it, I don't think anything will be lost, because I feel we could make a motion at any time before the close of the case to drop those two out.

The Court: It is my present opinion that I have jurisdiction. However, in spite of that, I will retain jurisdiction with the understanding that I will determine it after all the facts are in.

Mr. Wittschen: Yes, your Honor.

The Court: That is, if it does not burden either side or interfere with the record.

Mr. Wittschen: No. The only possible impairment there could be would be as to the two California defendants; and I am satisfied, from our present search of the authorities, if they stand in the way they could be dismissed out without impairing the others.

Mr. Smith: We don't wish to be put in the position of consenting to it, your Honor.

The Court: Very well.

Mr. Smith: Your Honor has proceeded and, if there is no jurisdiction, you cannot acquire jurisdiction, and we raised the point and we insist upon it.

The Court: No; if I have not jurisdiction, I cannot acquire it. There is this to be considered in this case that is peculiar: [2049] Under the cases I have heard and searched for, keeping in mind the nature of the case, I think with safety this court could acquire and hold jurisdiction, and, if I fail to do that, then you see the situation and the multiplicity of suits, and this case then is to be tried all over in the state court.

Mr. Wittschen: That is right as to the two that would be possibly impaired.

The Court: I think, if the record is protected, I have no doubt about obtaining jurisdiction to dispose of it on equitable grounds.

Mr. Wittschen: Well, in an equity case, your Honor could——

Mr. Alexander: Mr. Wittschen, I do not like to interrupt you, but we want to hear what you are saying back here and we are having great difficulty.

Mr. Wittschen: Very well. It is a law case, if the Court please.

The Court: It is a law case, and there is no doubt about the equity.

Mr. Wittschen: No. In 117 Federal, there is a case from this Circuit, the equity side, and some United States cases; they are cited in Simpkins Federal Procedure. The trouble is this is a law case. If we make an error, it is also held that it cannot be corrected on appeal; so, before the case is over, we can dismiss as to the two California defendants.

The Court: The reason I am taking the view that I am, I thought possibly—we have the peculiar condition here, both sides would be served in any event, and if you find that you are satisfied with your position you can renew your motion and I will dispose of it in that way.

Mr. Smith: Well, we shall never renew the motion, your Honor, [2050] because we made the motion to save our record on any proceeding.

The Court: Well, if you insist on the ruling, the Court will rule.

Mr. Smith: Yes, I think we can only protect the record.

Mr. Wittschen: Well, I would like to ask your Honor to defer it, in view of the fact we have only had last night and such time as we could crowd in this morning, and my present view is that, to be very frank, as long as this is a law case, we may not want to take a chance and hold in the two California defendants; but we can proceed as to the others; but, as long as we are to proceed anyway and it does not add to the burden one way or the other, I would not like to make a dismissal until I have had a little more time.

The Court: Today is Wednesday. I will have the matter up on Tuesday.

Mr. Wittschen: Very well; and we will exhaust the authorities.

The Court: So, both sides can have the record protected.

Mr. Tinning: It may be possible, your Honor, we will conclude the taking of testimony, in view of certain discussions that we have had. I don't know whether we will proceed that long. There may be a stipulation of facts.

The Court: My only purpose is trying to assist both sides.

Mr. Smith: It is not a matter of assisting, your Honor. We are merely suggesting to your Honor that the law provides the Court is without jurisdiction. If it is without jurisdiction, the Court is powerless to act in passing on the motion on jurisdiction——

Mr. Wittschen: It is only without jurisdiction as to those two defendants.

Mr. Smith: Let me finish, please, Mr. Wittschen.

Mr. Wittschen: Certainly. Pardon me.

Mr. Smith: This is not the kind of a matter that is arguable [2051] on the merits of the facts of the case at all. It is a matter that is either right or wrong as to the principle of the Court's power to proceed.

The Court: Don't misunderstand me. The only thing I am trying to do is serve both sides.

Mr. Smith: Well, we would like to have the matter passed on. We think it is a primary motion.

The Court: What percentage have those two surety companies?

Mr. Wittschen: 7 per cent for one and 4 for another; so that we could proceed against all the others. I have looked that much up. I am satisfied on that. Your Honor may retain jurisdiction as to the others; there is no doubt about that; and, if we have to act now, we can dismiss those two; we have the dismissals ready; but, as long as no one will be hurt in postponing that until the conclusion of the evidence, the same evidence will come in as to the others, I am asking your Honor merely to defer your ruling so that I can have another chance at the authorities.

The Court: Very well.

Mr. Smith: We will suggest the continuing of the other two defendants in will be error, and make

a motion that, if you feel they should be dismissed, they be dismissed immediately.

Mr. Alexander: I join in that motion.

The Court: You wish to let the matter stand open?

Mr. Wittschen: Yes, your Honor.

Mr. Smith: May we have an exception?

The Court: I already ruled it may be submitted at this time. I will ask counsel who has asked for time to renew his motion after he has had an opportunity to make a search.

Mr. Smith: We ask the Court's action in submitting the matter be excepted to; that we be allowed to except to your Honor's ruling [2052] in submitting it.

The Court: Very well.

Mr. Smith: It is the kind of a motion that must be passed on immediately.

Mr. Alexander: We also make an exception, your Honor, to protect the record.

Mr. Wittschen: Do you prefer to wait until the proof is in?

The Court: No. They insist on a ruling.

Mr. Wittschen: Well, your Honor does not have to accommodate them unless you want to. I asked that you put it over until the conclusion of the case.

The Court: Very well. Proceed.

The Clerk: What was the ruling on the motion, your Honor?

The Court: The motion to dismiss the two sureties— You better name them, for the purpose of the record.

Mr. Smith: The two which he has in mind—I assume you have in mind the two California defendants?

Mr. Wittschen: Yes; the Pacific Indemnity and the Fireman's Fund. If I conclude before the case ends that their presence in the suit jeopardizes the jurisdiction, we will file a dismissal.

The Court: Very well. Let the matter stand submitted.

Mr. Smith: We again except to the Court's order submitting the matter.

Mr. Alexander: We also except, your Honor.

Mr. Wittschen: On these amendments to the figures, to get them out of the way, do you prefer that we wait until we put our proof on and then amend to conform to the proof? I want to say in one or two cases we will have to make amendments because we are giving you a credit for some $2800 on work that did not go into any [2053] estimate because it was not so far finished that it could, or because we have moved some figures up and some down. They only involve the counterclaim, or the cross-complaint and the prayer, and it may be done in ten minutes or so: take the figures that they are insisting on and inserting them. Do you object to that being done now? If so, we will put our proof on and then ask leave to amend to conform.

Mr. Smith: We don't object to the mechanical method of doing it, but our objection goes to the proposition that we do not want to waive another objection.

The Court: That the Court has no jurisdiction?

Mr. Smith: Not only that; but based on the fact you have no right to proceed along the lines that you have because the action is prematurely brought and because the cross-complaint has no status, and these provisions outlined in the contract——

Mr. Wittschen: I understand. Subject to the objection that Mr. Alexander expressed to the Court, the fact of the prematurity and the fact that the exact provisions, as you claim, of the contract were not followed, and subject to the further objection you think the entire cross-complaint should be dismissed, you have no objection to the amendments?

Mr. Smith: No objection to the manner in which you are making it.

Mr. Alexander: I want to state that Mr. Wittschen, with all his niceness, has not stated our position. We would accord any courtesy to him, but, I think, to accept that very nice little suggestion of his would be to waive rights, which we cannot do.

Mr. Wittschen: There is no objection to my making it subject to all the objections that you have heretofore made? Is that [2054] correct?

Mr. Alexander: I cannot agree to anything. I am going to make it as easy as I can; but I am not going to put in— He knows; we discussed this off the record, outside of court; he knows what we have

said; but I am not going to make any statement in court indicating that I agree to a plan that may waive valuable rights.

Mr. Wittschen: Then, I suggest,—and I would ask your Honor's permission,—when that is in, to amend to conform.

WALLACE B. BOGGS,

recalled, by cross-complainant;

Direct Examination (resumed)

Mr. Tinning: Q. Mr. Boggs, what was your university training?

A. I graduated from the College of Civil Engineering at the University of California in 1912.

Q. Are you a member of the American Society of Engineers?

A. I am a member of the American Society of Civil Engineers.

Q. Since you have graduated from the University of California, have you continuously engaged in the practice of engineering?

A. Yes, except for the period when I was in the Army during the World War.

Q. What has your experience been as an engineer, commencing with the time that you left college; making it very brief, Mr. Boggs, what was your first work?

A. Upon graduation, I was employed by Haviland and Tibbitts, a firm of consulting civil engi-

(Testimony of Wallace B. Boggs.)

neers. My work was in connection with street work, drainage work and reclamation work. I was with them from 1912 to 1915. In 1915, I left their employ and became employed by Bondy and L'Hommedieu, a firm of civil engineers in Oakland; and I was with them for about one year. I [2055] was the chief assistant engineer of the firm, and the work was primarily reports on irrigation, reclamation work and subdivisions and street work in the Eastbay area.

Q. How long were you with Bondy and L'Hommedieu? A. Approximately a year and a half.

Q. What did you do next?

A. Following that, I was employed by the Eastbay Water Company on the San Pablo Dam and Tunnel project. This work was just starting in the fall of 1916. I was the field engineer. I was assistant to the project engineer, and had charge of the inspections and the survey work upon that project which at that time consisted of the building of a diversion dam on San Pablo Creek, and of a tunnel,—waste water tunnel,—approximately 1400 feet in length and excavated about 18 feet in diameter.

Q. That is not what has been referred to in the evidence in this case as the San Pablo Tunnel that runs from the Dam westerly into Berkeley or El Cerrito?

A. No; that is not. That is the waste water tunnel; it was designed to take care of the surplus waters from the dam; the small tunnel which you

(Testimony of Wallace B. Boggs.)

refer to was started shortly before I left that project.

Q. How long were you in the Army; during what period?

A. I was in the Army from October, 1917 to July, 1919.

Q. Were you in the Engineering Corps?

A. Yes; I was a second lieutenant of Engineers.

Q. During the period you were in the Army, did you engage in engineering work and construction?

A. Yes; I did. During my war service, we constructed roads immediately back of the front line work, but following that I was sent on up into Germany and had charge of approximately three or four hundred men in the construction of barracks and supply depots for the Army of Occupation.

[2056]

Q. After you left the Army in 1919, where were you employed?

A. I was employed by P. A. Havilland who was county surveyor of Alameda County, and also engaged in practice as a civil engineer. I was employed as chief draughtsman in the office in Oakland.

Q. How long did you continue in the county surveyor's office of Alameda County?

A. I continued in the county surveyor's office of Alameda County until January, 1931. Upon Mr. Havilland's death in 1921, he was succeeded by Mr. George A. Posey, and I became Mr. Posey's chief

(Testimony of Wallace B. Boggs.)

assistant in charge of all the office and field work, inspections on all the work done by the county which consisted primarily of highway construction projects and the Oakland-Alameda Tube which was built during that time, and, in addition to that, he did private work upon which I was associated. The private work consisted of reports on reclamation work and also street and sanitary designs and construction in the Eastbay area.

Q. Prior to your leaving the county surveyor's office in 1931, did any part of your duties include work in connection with the project of this district?

A. Yes, sir. From the start of that project, approximately 1928, up to the time I left, why, that work was under my general supervision.

Q. Under your general supervision, you being a subordinate to Mr. Posey?

A. A subordinate to Mr. Posey, —his chief assistant.

Q. When I say Mr. Posey had charge of it, it is true, is it not, up to the time of Mr. Posey's death, that both he and the county surveyor of Contra Costa County, R. Arnold, were working jointly for the two counties? A. Yes, sir.

Q. Mr. Posey's office was the office from which they employed engineers for the District, the draughtsman, people working up what was to be done, actually occupying space in Mr. Posey's office?

A. Yes, sir. [2057]

(Testimony of Wallace B. Boggs.)

Q. You have already testified that you became District Engineer in September, 1932, and continued to this date?

A. Yes.

Q. It is a fact, is it not, Mr. Boggs, that the project of this District which is involved in this action is located within the boundaries of Contra Costa County and Alameda County and is known as Joint Highway District No. 13 of the State of California?

A. Yes, sir.

Q. How much did the State of California contribute to this project?

A. The State of California contributed a total of $700,000.

Q. How much did the United States contribute to this project?

A. $1,095,000.

Q. At any time after the District deducted $3500 for delay from estimates from the amount paid the Contractor, Estimate No. 24, did Six Companies of California ask the District Engineer of this District, in writing or otherwise, to determine whether or not the District had properly deducted the liquidated damages?

Mr. Smith: Just a moment. The question is objected to on the ground it is incompetent, irrelevant and immaterial for the reason that the question elicits an answer which has nothing to do with the issues of the case, and, further, that the testimony cannot be received because the cross-complaint does not state facts sufficient to constitute a cause of action.

(Testimony of Wallace B. Boggs.)

Mr. Alexander: We make the same objection, your Honor.

Mr. Wittschen: There is aprovision in the specifications that requires all disputes that in any manner touch on those specifications or that contract to be submitted to the District Engineer, and I have here, your Honor, two or three cases that point to this very fact: the deduction of penalties for delay from a similar clause is done and was thereupon submitted to him for decision. We are merely asking him if they ever asked him—— [2058]

Mr. Smith: I will add to that objection, in view of counsel's statement, that the estimate which is involved shows on its face that the witness in question exercised his alleged judgment, although we question he had any in the premises, and did deduct the penalty over his signature; so it is immaterial.

Mr. Alexander: I urge the same objection, if your Honor please.

The Court: Read the question.

(Pending question read)

The Court: You had better reframe the question.

Mr. Tinning: Very well, your Honor.

Q. At any time after Estimate No. 24. —which was issued by the District on the 9th day of June, 1936, from which estimate $3500 was deducted for liquidated damage for delay, —did Six Companies of California request the District Engineer, in writing or otherwise, to determine whether or not the District had fairly deducted the liquidated damage?

(Testimony of Wallace B. Boggs.)

Mr. Smith: I make the same objection.

Mr. Alexander: We make the same objection.

The Court: The objection will be overruled.

Mr. Smith: Note an exception, please.

Mr. Alexander: We note an exception.

The Witness: A. No.

Mr. Tinning: Q. After Estimate No. 24 was issued by the District Engineer and the check in payment of the amount shown by that estimate was sent to the Six Companies of California on or about the 10th day of June, 1936, did Six Companies of California request the District, in writing or otherwise, —the District Engineer, —to determine any of the questions raised or set forth in the notice of purported rescission dated June 13, 1936? [2059]

Mr. Smith: To which we make the same objection as heretofore made.

Mr. Alexander: And I will make the same objection.

The Court: Objection overruled.

Mr. Smith: Exception.

Mr. Alexander: We note an exception.

The Witness: A. No.

Mr. Tinning: This is a preliminary question, gentlemen.

Subsequent to June 13, 1936, when Six Companies of California, the plaintiff in this action, ceased work on the project of the District, was it necessary for the District to measure the work that had been completed, for the purpose of determining the work which remained to be done?

(Testimony of Wallace B. Boggs.)

Mr. Smith: We object to the question on the ground it calls for a conclusion of the witness and on the same ground the objection was made to the previous questions.

Mr. Alexander: We make the same objection, your Honor.

The Court: I will allow it as a preliminary question.

Q. You may answer it.

The Witness: May I have the question read?

(Pending question read by the reporter.)

Mr. Smith: The question is particularly vicious; the question says: "Was it necessary?" The purpose is not indicated, and the question of necessity has nothing to do with it.

The Court: The Court has ruled.

The Witness: A. Yes.

Mr. Smith: I already noted an exception.

Mr. Tinning: One moment, your Honor, there has been so much discussion here.

The Court: We will take a recess.

(Recess) [2060]

(After recess)

Mr. Alexander: Your Honor, before proceeding, for the record, I was not clear, and am not clear yet, as to whether your Honor had denied the motion to dismiss the cross-complaint, or had reserved your ruling.

The Court: I denied it.

(Testimony of Wallace B. Boggs.)

Mr. Alexander: Then if that is so, if we have not already reserved an exception we ask to do so at this time. Note an exception.

Mr. Smith: Note an exception.

Mr. Tinning: Q. Mr. Boggs, subsequent to June 13, 1936, at the time the Six Companies of California quit the work, did the Joint Highway District No. 13 of the State of California advertise for bids for the project as a whole, the bids to be tendered on the 11th of September, 1936?

Mr. Smith: I object to the question on the same grounds previously stated.

Mr. Alexander: And we join in the objection.

The Court: The objection is overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

A. Yes.

Mr. Smith: I do not like to be a chronic objector, but in view of your Honor's ruling, under the Federal practice it is necessary to object.

Mr. Tinning: I understand. You are in the same position as we were in connection with protecting the record. We cannot make a general stipulation that will cover the whole line of it. I will try to keep that in mind.

Q. Were any bids received by the District on September 11, 1936?

Mr. Smith: The same objection.

Mr. Alexander: I think we may gain time if we state at this [2061] time the grounds of the objection

(Testimony of Wallace B. Boggs.)

to the question and then later on we can simply say "The same objection" if that will be in order.

The Court: Very well.

Mr. Alexander: We object to that question on the ground it is immaterial, irrelevant, and incompetent, that no cause of action was stated in the cross-complaint, that the cross-complaint was filed prematurely and before the amount of expense was determined as provided in Article V of the contract, and Section 6(Q), Subdivisions 1, 2 and 3 of the specifications, and that the cross-complaint is based upon an attempt to recover a reasonable cost of completion and not to recover damages as provided in the contract; that the contract provides the district must complete with its own labor as provided in Article V, and not with other contracts or subcontracts.

Mr. Wittschen: Might I call your attention, if you stand on the ground it is incompetent we will have to prove this by original records.

Mr. Alexander: We are not raising the point that the original records are not here.

Mr. Wittschen: Or that summaries are used?

Mr. Alexander: Or that summaries are used.

Mr. Wittschen: You are waiving that?

Mr. Alexander: That is not the point of the objection. We do not make those two objections.

Mr. Smith: We are in the same position as Mr. Alexander, and in addition I want to add to the objection that proof of reasonable cost or reasonable

(Testimony of Wallace B. Boggs.)

expenditures made is not proof or proper proof of damages under this cross-complaint.

Mr. Alexander: We add that to our objection

The Court: The objection will be overruled.

Mr. Smith: Note an exception.

Mr. Alexander: Note an exception. [2062]

Mr. Tinning: Subsequent to September 11, 1936 did the District adopt amendments and supplements to the specifications which were adopted on the 23rd of September, 1936?

Mr. Smith: Objected to on the same grounds, the same grounds of objection made I now repeat.

Mr. Alexander: The same objection.

The Court: Read the question.

(Question read by the reporter.)

Mr. Wittschen: I think, in view of the objection, we had better put in the various contracts that speak for themselves.

The Court: I am thinking about change of contract.

Mr. Tinning: The proof will go to the fact that the work, in other words, the only thing that was done by the supplement was to divide the same work which is described in the original plans and specifications into eight parts; there was no different work of any kind. It followed right along. The proof will show that eight separate contracts were let, one contract for boring the tunnel and putting in the structural lining, another to put in the partitions in the lining of the tunnel, and the pave-

(Testimony of Wallace B. Boggs.)

ment, another man put in the electrical, mechanical and ventilating equipment, another man finished the building, another man finished the pavement, and so on, and the testimony will show and the exhibits will show that it is identical with the supplemental specifications of September 23, it simply divided the work up, and all the work was done under the specifications, the original specifications that Six Companies worked under, that this supplement divided it up.

The Court: The only thing is the record.

Mr. Tinning: I think in view of the way the objection is made we will have to put the records in. I do not think it is safe otherwise to proceed. [2063]

The Court: Very well. In order to have the record clear, if you depart from this original contract you get into difficulties, that is my thought.

Mr. Tinning: The proof that we propose putting in, in view of the fact that counsel do not feel that they can stipulate——

The Court: I understand that.

Mr. Tinning: I think that we ought to put in the documents in the way it was done in the other case or we will have to put in copies. They are agreeable to that, as I understand.

Mr. Smith: Yes.

Mr. Alexander: Yes.

Mr. Tinning: I think we ought to prove each proceeding, so that the record will show what is being done.

The Court: Very well, proceed.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: I offer in evidence, if your Honor please, a resolution of the Board of Directors of Joint Highway District No. 13, approving the supplement to specifications accompanying and forming a part of the final surveys, plans and specifications and detail drawings of the District which were adopted on the 30th of March, 1933, the supplement and resolution referred to being passed and adopted on the 17th day of August, 1936, and I ask that it be marked Defendant's Exhibit in proper order.

The Court: It will be admitted and marked.

Mr. Smith: Why don't you adopt a new series of numbers on the cross-complaint?

Mr. Tinning: We will ask that it be marked X-1.

Mr. Smith: To the offer we object on the same grounds previously stated.

Mr. Alexander: We also make the same objection.

Mr. Wittschen: May it be understood for the record that there [2064] will be no objection because copies are used instead of the original?

Mr. Smith: Yes.

Mr. Alexander: Yes.

The Court: The objection is overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

(The resolution was marked "Defendant's Exhibit X-1.")*

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: I offer in evidence the certificate of Earl Lee Kelly, Director of Department of Public Works of the State of California, approving the supplement authorized by the District on the 17th of August, 1936, the certificate being dated the 18th of August, 1936.

Mr. Smith: To which we make the same objection.

Mr. Alexander: The same objection.

The Court: Let it be admitted next in order

Mr. Smith: To which we note an exception.

Mr. Alexander: We note an exception.

(The certificate was marked "Defendant's Exhibit X-2.")*

Mr. Tinning: The defendant offers in evidence supplement to specifications adopted August 17, 1936, as Defendant's Exhibit X-3.

Mr. Smith: The same objection.

Mr. Alexander: The same objection.

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

(The document was marked "Defendant's Exhibit X-3.")

[Set forth in the Book of Exhibits at page 501.]

Mr. Tinning: Defendant offers in evidence the

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

minutes of the Board of Directors of the District for the meeting of September 11, 1936, held at the hour of 12 o'clock noon, the minutes, your Honor, showing that no bids were received on that date.

Mr. Smith: To which we object for the same reasons previously [2065] stated.

Mr. Alexander: The same objection.

The Court: The same ruling.

Mr. Smith: To which we note an exception.

Mr. Alexander: Exception.

(The document was marked "Defendant's Exhibit X-4.")*

Mr. Smith: It would seem to me between now and two o'clock we could make out a statement as to those exhibits to which we did not object and put it in that way.

The Court: The only idea I have in mind is to have a proper record.

Mr. Tinning: Maybe we can work something out. I think it is worth trying. Forty minutes now may save four days. May we have an adjournment now until two o'clock?

The Court: We will take an adjournment now until two o'clock.

(A recess was here taken until two o'clock p. m.)

[2066]

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

Afternoon Session

Mr. Wittschen: I have checked the authorities further upon that matter of those two California defendants, and at this time the defendant and cross-complainant Joint Highway District No. 13 of the State of California, a public corporation, hereby dismisses without prejudice its cross-complaint as against cross-defendants Fireman's Fund Indemnity Company, a California corporation, and Pacific Indemnity Company, a California corporation, only, dated June 1st, and signed by the attorneys for the defendant and cross-complainant, and will file that with the clerk.

Mr. Smith: We object to any dismissal of any of the defendants on the ground that the cause cannot be separated for purposes of a dismissal, and on the further ground the dismissal comes too late.

Mr. Alexander: We make the same objection, your Honor.

The Court: Motion will be granted; note an exception.

Mr. Alexander: We except.

Mr. Smith: We except to the order granting the motion.

WALLACE B. BOGGS,

recalled.

Mr. Tinning: Your Honor, in view of the stipulations or understanding that we have had here before, that the plaintiff and cross-defendants would not object to the introduction of copies of documents, I offer, and I make now—every document which I will expect to put in, I make an omnibus offer.

Mr. Smith: Let me understand your statement—copies rather than originals?

Mr. Tinning: Well, I think that is sufficient: copies rather than originals, or the fact that copies of resolutions are not original certified copies.

[2067]

Mr. Smith: Yes.

Mr. Tinning: Copies of certified copies.

The Court: Subject to any correction that may hereafter be made if there is any doubt?

Mr. Tinning: Yes.

Mr. Smith: And we will have an objection to their admissibility which we will state after Mr. Tinning makes the offer.

Mr. Tinning: Yes. For the purpose of permitting the one objection to all of the evidence that is offered, the offer is made in this omnibus form to save time. The last exhibit we had was X-4. The defendant offers the following documents as exhibits in proper order, commencing with X-5*: certified

*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

copy of resolution of board of directors of Joint Highway District No. 13 of the State of California, adopted August 19, 1936, calling for bids for completion of project.

As X-6*, affidavit of publication of notice to bidders in Oakland Tribune, bids that were to be received on September 11, 1936.

As Exhibit X-7*, certified copy of resolution of board of directors of Joint Highway District No. 13 of the State of California adopted August 26, 1936, rescinding resolution adopted August 19, 1936, giving notice to contractors; and giving notice to contractors that bids for completion of project would be received; and directing publication of notice to bidders in Oakland Tribune.

The next Exhibit will be X-8*: Affidavit of publication in Oakland Tribune—bids to be received September 11, 1936.

Next in order is X-9*: Resolution of board of directors adopted September 23, 1936, rescinding supplement to specifications adopted August 17, 1936; and approving supplement to specifications dividing work into Schedules A to H. [2068]

Next is X-10*: Certificate of Earl Lee Kelly, Director of Department of Public Works of the State of California, approving supplement to specifications of September 23, 1936.

Next in order is X-11: Supplement of September 23, 1936.

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

[Set forth in the Book of Exhibits at page 534.]

Next in order is X-12*: Resolution of board of directors adopted September 25, 1936, giving notice to contractors that bids would be received October 16, 1936, for work included within Schedule "A."

Next in order is X-13*: Affidavit of publication of notice to bidders in the Oakland Tribune for bids to be received under Schedule "A."

Next in order are Exhibits X-14a*, 14b* and 14c*, X-14a being the bid of George Pollock Company and R. G. Clifford; 14b being the bid of Mas L-Hanger Company; 14c being the bid of W. A. Kettlewell and W. S. Mead; all of the same being bids on Schedule "A."

Next is X-15*: Resolution of board of directors adopted October 21, 1936, awarding contract to George G. Pollock and R. G. Clifford, for the work included under Schedule "A."

Next in order is Exhibit X-16*: Contract between Pollock and Clifford and Joint Highway District No. 13 of the State of California, dated November 9, 1936, for the work included in Schedule "A."

Next in order, Exhibit X-17*: Bond executed by Pollock and Clifford with the District and the corporate sureties for the faithful performance of the contract under Schedule "A" dated November 9, 1936.

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*See Agreed Statement of Facts set out at page 495 ot the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

Next in order is Exhibit X-18*: Resolution of board of directors approving bond for faithful performance, the bond being furnished by Pollock and Clifford.

Next in order is Exhibit X-19*: Bond securing material men and laborers, furnished by Pollock and Clifford, which was dated on [2069] November 9, 1936, for the work under Schedule "A."

Next in order is X-20*: Resolution of board of directors approving bond furnished by Pollock and Clifford in connection with material men and laborers' rights.

Next is X-21*: Resolution of acceptance of Schedule "A", the final estimate.

Those documents, gentlemen, include three or four different matters. There is a resolution accepting, a certificate of the Engineer and a letter transmitting the——

Mr. Smith: That is accepting it?

Mr. Tinning: Accepting the completion of the work under this one.

Mr. Smith: What is the date?

Mr. Tinning: I have not got that in my minutes; but it was some time in June, 1937. It shows on the exhibit, and you have a copy of it.

Mr. Smith: Yes.

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: Next in order is X-22*: Resolution of Board of directors adopted November 9, 1936, giving notice to contractors under Schedule "B"; that is for the grouting of the tunnels; bids to be received December 4, 1936.

Next is X-23*: Affidavit of publication of notice to contractors under Schedule "B," publication having been made in the Oakland Tribune.

Next are X-24a* and 24b*, and come in order: the bids received under Schedule "B"; X-24a being the bid of R. G. Clifford; and X-24b being the bid of Case Construction Co.

Next in order is X-25*: Resolution of board of directors adopted December 14, 1936, awarding contract for Schedule "B" grouting to [2070] R. G. Clifford.

X-26* is a contract between R. G. Clifford and the District.

X-27* is the bond for faithful performance furnished by R. G. Clifford under the contract for Schedule "B."

X-28* is a resolution of the board of directors adopted December 24, 1936, approving bond for faithful performance, furnished by Clifford on his contract for Schedule "B."

X-29* is bond securing material men and laborers under Schedule "B".

Next is X-30*: Resolution of board of directors adopted December 24, 1936, approving bond secur-

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

ing material men and laborers, which was furnished by Clifford on his contract for Schedule "B."

Next in order is X-31*: Resolution of acceptance of the Schedule "B" and final estimate.

Again, that comprises two or three documents, and, for the sake of having the subject matter together, it runs on several months, gentlemen.

Next in order is X-32*: Resolution of board of directors adopted November 9, 1936, giving notice to bidders on Schedule C, D, E and G, bids on Schedule C to be received December 9, 1936.

Next in order is X-33*: Affidavit of publication in the Oakland Post-Enquirer of notice to contractors, bids to be received under Schedule "C."

Next is X-34a* and 34b*: the bids received for Schedule C, Fred J. Early and George Pollock & R. G. Clifford.

Next is X-35*: Resolution of board of directors adopted December 14, 1936, rejecting all bids received December 9, 1936, for work under Schedule C; and requesting leave to do the work with District forces. [2071]

Next is X-36*: Resolution of board of directors adopted January 7, 1937, calling for bids under Schedule "C", "D," a second time, calling for bids to be received on January 27, 1937.

Next is X-37*: Affidavit of publication of notice to bidders, Oakland Post-Enquirer, for Schedule "C."

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

X-38a* and X-38b* and X-38c* are the bids received for Schedule "C," on January 27, 1937; "a" being from Fred K. DuPuy; "b" from Fred J. Early, Jr.; and "c" from John F. Knapp.

X-39* is a resolution of board of directors, adopted February 2, 1937, awarding contract to Fred K. DuPuy, for Schedule "C."

X-40* is a contract with Fred K. DuPuy and the District for the work included within Schedule "C."

X-41* is a bond for faithful performance of Schedule "C."

X-41* is a resolution of board of directors adopted February 19, 1937, approving faithful performance bond, Schedule "C."

X-43* is bond securing material men and laborers, Schedule "C."

X-44* is a resolution of board of directors adopted February 19, 1937, approving bond securing material men and laborers on Schedule "C."

X-45* is a resolution of acceptance of Schedule "C," and resolution re Withhold.

The situation, I think, gentlemen, some of you know; I think you have some cases pending; the contractor under Schedule "C" had notices to withhold filed against him which were in excess of the amount of the payment up to that time, and he completed his work,—finished the work; and the matter has been held up by the withhold notices, and, since

*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

that time, all of it has been paid out. There is some $30,000 including the $109,000 that was withheld.

X-46*: Affidavit of publication of notice to bidders, Oakland [2072] Tribune, Schedule "D." This was covered by a resolution which I have referred to before as X-32. This affidavit was in the Oakland Tribune.

X-47a* and X-47b* are the bids received for Schedule "D," on December 9, 1936; "a" being from Fred J. Early, Jr.; and "b" being from K. E. Parker Company.

X-48*: Resolution of board of directors adopted December 14, 1936, rejecting all bids received December 9, 1936, for Schedule D; and requesting authority to do work with District forces.

X-49*: Affidavit of publication of notice to bidders, Oakland Tribune, Schedule D.

X-50a*, X-50b* and X-50c*: Bids received for Schedule "D," January 27, 1937; "a" from E. T. Lesure; "b" being from Fred J. Early, Jr.; "c" being from K. E. Parker.

X-51*: Resolution of board of directors adopted February 2, 1937, awarding contract to E. T. Lesure, Schedule "D."

X-52*: Contract, E. T. Lesure with District, Schedule "D."

X-53*: Bond for faithful performance, Schedule "D."

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

X-54*: Resolution of Board of Directors adopted February 9, 1937, approving faithful performance bond, Schedule "D."

X-55*: Bond securing material men and laborers, Schedule D.

X-56*: Resolution of board of directors adopted February 9, 1937, approving bond securing material men and laborers, Schedule D.

X-57*: Resolution of acceptance of Schedule D, and final estimate.

X-58*: Affidavit of publication of notice to bidders, Post-Enquirer, Schedule "E."

X-59*: Bid received for Schedule E, December 18, 1936, Alta Electric and Mechanical Company, Inc.

X-60*: Resolution of board of directors adopted December 24, [2073] 1936, awarding contract to Alta Electric and Mechanical Company, Inc., for Schedule E.

X-61*: Contract, Alta Electric and Mechanical Company, Inc., with District, Schedule E.

X-62*: Bond for faithful performance, Schedule E.

X-63*: Resolution of board of directors adopted January 7, 1937, approving faithful performance bond, Schedule E.

X-64*: Bond securing material men and laborers, Schedule E.

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

X-65*: Resolution of board of directors adopted January 7, 1937, approving bond securing material men and laborers, Schedule E.

X-66*: Resolution of acceptance of Schedule E, and final estimate.

X-67*: Resolution of board of directors adopted February 9, 1937, calling for bids for Schedules F and H, to be received March 10, 1937.

X-68*: Affidavit of Publication of notice to bidders, Oakland Post-Enquirer, Schedule F.

X-69*: Bids received for Schedule F, March 10, 1937: Alta Electric and Mechanical Company, Inc.

X-70*: Resolution of board of directors adopted March 16, 1937, awarding contract to Alta Electric and Mechanical Company, Inc., for Schedule F.

X-71*: Contract, Alta Electric and Mechanical Company, Inc., with District, for Schedule F.

X-72*: Bond for faithful performance, Schedule F.

X-73*: Resolution of board of directors adopted April 8, 1937, approving faithful performance bond, Schedule F.

X-74*: Bond securing material men and laborers, Schedule F.

X-75*: Resolution of board of directors adopted April 8, 1937, approving bond securing material men and laborers, Schedule F. [2074]

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

X-76*: Resolution of acceptance of Schedule F, and final estimate.

X-77*: is an affidavit of publication of notice to bidders in the Oakland Tribune, Schedule "G", covered again by resolution Exhibit X-32, or the exhibit X-32 under this offer.

X-78a*, 78b* and 78c*: the bids received for Schedule G, on December 18, 1936; "a" being the Heafey-Moore Company bid; "b" being Fredrickson & Watson Construction Company bid; and "c" being George Pollock & R. G. Clifford.

X-79*: Resolution of board of directors, awarding contract to Heafey-Moore Co., adopted December 24, 1936, for Schedule G.

Exhibit X-80*: Contract, Heafey-Moore Co. with District, Schedule G.

Exhibit X-81*: Bond for faithful performance, Schedule G.

Exhibit X-82*: Resolution of board of directors adopted January 15, 1937, approving faithful performance bond, Schedule G.

Exhibit X-83*: Bond securing material men and laborers, Schedule G.

Exhibit X-84*: Resolution of board of directors approving bond securing material men and laborers, Schedule G.

Exhibit X-85*: Resolution of Acceptance of Schedule G, and final estimate.

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

Exhibit X-86*: Affidavit of Publication of notice to bidders, Oakland Tribune, Schedule H.

Exhibit X-87*: Bid received for Schedule H, March 10, 1937, Moore Dry Dock Co.

Exhibit X-88*: Resolution of board of directors adopted March 16, 1937, rejecting bid of Moore Dry Dock Co., received March 10, 1937, for Schedule H, as excessive. [2075]

Exhibit X-89*: Resolution of board of directors adopted March 16, 1937, calling for bids for Schedule H the second time—bids to be received March 31, 1937.

Exhibit X-90*: Affidavit of publication of notice to bidders, Oakland Tribune, Schedule H.

Exhibit X-91*: Bids received for Schedule H, March 31, 1937: Moore Dry Dock Co.,—its second bid.

Exhibit X-92*: Resolution of board of directors adopted March 31, 1937, rejecting bid of Moore Dry Dock Co., received March 31, 1937, for Schedule H.

Exhibit X-93*: Resolution of board of directors, calling for bids for Schedule H the third time,—bids to be received April 12, 1937.

Exhibit X-94*: Affidavit of publication of notice to bidders, Oakland Tribune, Schedule H.

Exhibit X-95a* and Exhibit X-95b*: Bids received for Schedule H, April 12, 1937, under third

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

call: "a", Berkeley Steel Construction Co.; "b" Independent Iron Works.

Exhibit X-96*: Resolution of board of directors adopted April 16, 1937, awarding contract to Berkeley Steel Construction Co., for Schedule H.

Exhibit X-97*: Contract, Berkeley Steel Construction Co. with District, for Schedule H.

Exhibit X-98*: Bond for faithful performance, Schedule H.

Exhibit X-99*: Resolution of board of directors adopted April 30, 1937, approving bond for faithful performance, Schedule H.

Exhibit X-100*: Bond securing material men and laborers, Schedule H.

Exhibit X-101*: Resolution of Board of Directors adopted April 30, 1937, approving bond securing material men and laborers, [2076] Schedule H.

Exhibit X-102*: Resolution of acceptance of Schedule H, and final estimate.

Exhibit X-103: Certificate of completion of project, of Earl Lee Kelly, Director of Department of Public Works of the State of California, dated November 30, 1937.

DEFENDANT'S EXHIBIT X-103

CERTIFICATE OF COMPLETION

I, Earl Lee Kelly, Director of Public Works

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*See Agreed Statement of Facts set out at page 495 of the Book of Exhibits.

(Testimony of Wallace B. Boggs.)

of the State of California, upon recommendation of the State Highway Engineer, do hereby certify that the project of Joint Highway District No. 13 of the State of California, including a highway, highway tunnels and approaches with appurtenant structures, located partly in the City of Oakland, County of Alameda, State of California, and partly in the County of Contra Costa, State of California, all in said Joint Highway District No. 13 of the State of California, the westerly terminus of said project being located at a point near the intersection of Broadway with Keith Avenue in the said City of Oakland, and the easterly terminus of said project being located at a point on the State Highway in Contra Costa County approximately fourteen hundred feet northerly from the intersection of the Fish Ranch Road with said State Highway, which is commonly known as and called the "Tunnel Road", has been fully constructed, improved and completed in accordance with the plans and specifications therefor heretofore adopted by the Board of Directors of said District on the 30th day of March, 1933, and the amendments and supplements thereto adopted by said Board of Directors on the 9th day of January, 1934, on the 3rd day of April, 1934, and the 23rd day of September, 1936, made by Wallace B. Boggs,

(Testimony of Wallace B. Boggs.)

District Engineer, all of which said plans and specifications were approved by me.

In Witness Whereof, I have executed this certificate of completion, this 30th day of November, 1937.

[Seal] (signed) EARL LEE KELLY,
Director of Public Works
of the State of California.

[Endorsed]: Filed December 1, 1937. Harry M. Stow, Secretary, Joint Highway District No. 13 of the State of California.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. X-103. Filed June 1, 1938. Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

I may state, with respect to that, your Honor, that under the rule where the state contributes, the road cannot be opened to use until such a certificate is given.

X-104 is a letter from C. H. Sweetser, Bureau of Public Roads, with respect to the completion of Schedules A and B.

(Testimony of Wallace B. Boggs.)

DEFENDANT'S EXHIBIT X-104

United States Department of Agriculture
Bureau of Public Roads
District Two

Federal Office Bldg.,
Civic Center,
San Francisco, Calif.

Arizona, California, Nevada
483 Calif. 2231 (Broadway Tunnel)
Schedule A and B
Received: June 22, 1937
J. H. D. #13

June 21, 1937.

Mr. Wallace B. Boggs
District Engineer
Joint Highway District 13
1448 Webster Street
Oakland, California

Dear Sir:

Reference is made to your letter of June 18, 1937, relative to your intention to recommend acceptance of Schedule A and Schedule B of U. S. Public Works Project, Docket California 2231, Broadway Tunnel at the meeting of the Board of Directors of Joint Highway District No. 13 on Tuesday, June 22, 1937.

Insofar as the Bureau of Public Roads is

(Testimony of Wallace B. Boggs.)

concerned it will be satisfactory for you to recommend acceptance of these schedules.

Yours very truly,
C. H. SWEETSER,
District Engineer.
By (Signed) CHAS. C. MORRIS,
Senior Highway Engineer.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. X-104. Filed June 1, 1938. Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

X-105 is a similar letter, with respect to another schedule.

DEFENDANT'S EXHIBIT X-105

United States Department of Agriculture
Bureau of Public Roads
District Two
Federal Office Bldg.,
Civic Center,
San Francisco, Calif.

Arizona, California, Nevada
483 Calif. 2231
Received: December 2, 1937
J. H. D. #13

December 1, 1937.

Mr. Wallace B. Boggs
District Engineer
Joint Highway District # 13
1448 Webster Street
Oakland, California

(Testimony of Wallace B. Boggs.)

Dear Sir:

It will be satisfactory for you to accept the work done under Schedules C, D and E of the Broadway Low Level Tunnel, P.W.A. Docket California 2231, as of this date.

This confirms the verbal acceptance given by telephone.

Yours very truly,
C. H. SWEETSER,
District Engineer.
By (Signed) LEVANT BROWN,
Senior Highway Engineer.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. X-105. Filed June 1, 1938. Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

X-106 is a similar letter, with respect to another schedule.

DEFENDANT'S EXHIBIT X-106

United States Department of Agriculture
Bureau of Public Roads
District No. 2

In your reply please refer to file No. .....
483 Calif. 2231
Received: Sept. 10, 1937
J. H. D. #13

Federal Office Bldg.,
Civic Center,
San Francisco, Calif.

(Testimony of Wallace B. Boggs.)

September 7, 1937.

Mr. Wallace B. Boggs
District Engineer
Joint Highway District # 13
1448 Webster Street
Oakland, California

Dear Mr. Boggs:

Final inspection of Schedule F, Furnishing and Installing Carbon Monoxide Detectors and Recorders, for the Broadway Low-Level Tunnel, PWA Docket 2231, was made today.

Insofar as the Bureau of Public Roads is concerned, it will be satisfactory for you to recommend acceptance of this contract.

Very truly yours,
(Signed) C. H. SWEETSER,
District Engineer.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. X-106. Filed June 1, 1938. Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

X-107 is a similar letter, with respect to two other schedules.

(Testimony of Wallace B. Boggs.)

DEFENDANT'S EXHIBIT X-107

United States Department of Agriculture
Bureau of Public Roads
District Two

Federal Office Bldg.,
Civic Center,
San Francisco, Calif.

Arizona, California, Nevada
483 Calif. 2231
Received: November 9, 1937
J. H. D. #13

November 8, 1937.

Mr. W. B. Boggs,
District Engineer
Joint Highway District # 13
1448 Webster Street
Oakland, California

Dear Sir:

Schedule G of the Broadway Low-Level Tunnel, P.W.A. Docket California 2231, was inspected today by a representative of this office, and found satisfactory.

I concur in your recommendation for the acceptance of this contract.

Yours very truly,
C. H. SWEETSER,
District Engineer.
By (Signed) CHAS. C. MORRIS,
Senior Highway Engineer.

mony of Wallace B. Boggs.)
[Endorsed]: U. S. Dist. Ct. N. D. Cal. No.
101-R. Deft's. Ex. X-107. Filed June 1, 1938.
Valter B. Maling, Clerk, by J. A. Schaertzer,
eputy Clerk.

08 is a similar letter, with respect to two
schedules.

DEFENDANT'S EXHIBIT X-108

nited States Department of Agriculture
Bureau of Public Roads
District Two

Federal Office Bldg.,
Civic Center,
San Francisco, Calif.

rizona, California, Nevada
eceived: Sept. 22, 1937
J. H. D. #13
3 Calif. 2231

September 22, 1937.

r. W. B. Boggs
istrict Engineer
oint Highway District No. 13
48 Webster Street
akland, California

ear Sir:

Schedule H of the Broadway Low Level Tun-
l has been inspected and found satisfactory.
Insofar as the Bureau of Public Roads is

(Testimony of Wallace B. Boggs.)

concerned, this contract may be accepted as soon as you desire.

Very truly yours,

C. H. SWEETSER,

District Engineer.

By (Signed) CHAS. C. MORRIS,

Senior Highway Engineer.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. X-108. Filed June 1, 1938. Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

Those are all the exhibits included in this offer.

Mr. Smith: To the offer of those exhibits, we make the same objection that we heretofore made to the offer of the separate exhibits just introduced and admitted by your Honor before, and, in addition to the objection made at that time, we desire to add, because it now appears from the evidence offered that the work was broken up into separate schedules and relet upon several of these contracts, as I understand it, eight in number, which, in our opinion,—and we believe the law fully supports us,—is an improper practice because, according to the statement of counsel themselves, they had a right to do one of two things: they either had a right to call for bids and, failing to get bids, to do the work themselves; that was the statement he made yesterday.

Mr. Wittschen: No. [2077]

(Testimony of Wallace B. Boggs.)

Mr. Smith: In other words, he stated they could not do the work themselves because the Act obligated them to do the work by letting to the lowest bidder and, having attempted to let it to the lowest bidder, and not having received a bid, the other alternative which he stated was the right that they had in order to complete the work probably immediately came into action, namely, that they would have to do the work with their own forces, instead of which, from the evidence, they obviously decided to split the work up to suit themselves; and to all of this we object that it is not proper under the contract, because they were limited to the methods prescribed by Article V, or by the law as he stated it himself.

Mr. Wittschen: May I make a correction? You just stated the law. I said that, if bids came in that were too high, they could be rejected. I merely want to correct Mr. Smith's misapprehension of the District's organic act, so there will be no misunderstanding. If bids came in, the District might reject them if too high, and do the work with their own forces; but the Act is silent with respect to that right if no bid were received.

Mr. Smith: That is what I thought you had said. It seems to me self-evident that if they rejected a bid and receiving no bid they are in the same situation as if they rejected a bid. I can see no difference between receiving a bid which you reject and receiving no bid. They received a bid

(Testimony of Wallace B. Boggs.)

and they rejected it, and do it with their own forces; that is the very point we have in mind. That interpretation which he just made, I add as a ground for objection.

Mr. Wittschen: I don't want to argue it; but we don't make the law.

Mr. Smith: I think one thing is equal to the other. [2078]

Mr. Alexander: On behalf of the cross-defendant surety companies I make the same objection in all details and all particulars that was made by Mr. Smith. In view of the little colloquy that has taken place I would like to recapitulate what the objections have been, namely, we object to the introduction of this evidence on the ground that it is irrelevant and immaterial, that no cause of action was stated in the cross-complaint, that the cross-complaint was prematurely filed, and before the amount of the expense was determined as provided in Article V of the contract, and in section 6(q) subsections 1, 2 and 3 of the specifications; that the cross-complaint, for the reasonable cost of completion, is not justified by the express terms of the contract, that it was incumbent upon the district under the contract, Article V thereof, to complete with its own labor and not to arrange for the completion of it by a contract; that there has been a breach of the contract in that this District did not complete the contract, either by its own labor or by

(Testimony of Wallace B. Boggs.)
a contract, but split up a lot of incompleted work in eight separate contracts.

The Court: The objection will be overruled.

Mr. Smith: Exception.

Mr. Alexander: We also except.

Mr. Tinning: I think before I started this omnibus offer that I had handed Mr. Boggs, for the purpose of this record, a summary of amounts that had been paid by the District on each of the contracts.

Q. Mr. Boggs, have you before you a schedule showing the total amount paid for completing the project under the contract, Schedules A, B, C, D, E, F, G, and H? A. Yes.

Mr. Alexander: May the answer go out just for a moment?

The Court: Yes.

Mr. Alexander: To which we make the same objection, your Honor.

Mr. Wittschen: He has only answered he has it before him. [2079]

Mr. Alexander: We make the same objection.

The Court: The objection is overruled.

Mr. Alexander: We note an exception.

Mr. Smith: Note an exception.

A. Yes.

Mr. Tinning: Q. Were the amounts paid by the District to the contractors under the various schedule as set forth on this sheet that you have?

A. Yes.

Mr. Alexander: May that answer go out?

(Testimony of Wallace B. Boggs.)

The Court: It goes out.

Mr. Alexander: We make the same objection.

Mr. Smith: We make the same objection.

The Court: The same ruling.

Mr. Alexander: And we note an exception, your Honor.

Mr. Smith: We also note an exception.

Mr. Wittschen: Might I ask a question: Your objection does not run that that is a summary of those costs?

Mr. Alexander: No, it does not.

A. Yes.

Mr. Tinning: Q. Was the total amount paid by the District for the contract under the eight schedules listed the sum of $1,751,611.74?

Mr. Alexander: We make the same objection, your Honor.

Mr. Smith: So do we.

The Court: The same ruling.

Mr. Smith: We note an exception.

Mr. Alexander: We note an exception.

A. Yes.

Mr. Tinning: Gentlemen, I think for the sake of the record, probably it will shorten the matter, it would be wise to offer this in evidence. [2080]

Mr. Smith: I think so, too.

Mr. Tinning: We offer then as Defendant's Exhibit X-109 the schedule of payments made under the various contracts to complete the project.

Mr. Smith: Would you add to your offer that X-109 is a document which the witness Boggs had

(Testimony of Wallace B. Boggs.)

in his hand when you asked him the last three or four questions?

Mr. Tinning: Yes.

Mr. Alexander: To which we make the same objection.

The Court: The same ruling.

Mr. Alexander: Exception.

Mr. Smith: We join in the objection and exception.

(The document was marked "Defendant's Exhibit X-109.")

DEFENDANT'S EXHIBIT X-109

Schedule of Total Amounts Paid for Completing Project Under Contracts for Schedules "A", "B", "C", "D", "E", "F", "G" and "H".

Schedule "A"	$736,551.18
Schedule "B"	21,511.36
Schedule "C"	426,262.02
Schedule "D"	43,460.00
Schedule "E"	269,800.00
Schedule "F"	18,893.00
Schedule "G"	216,062.36
Schedule "H"	19,071.82
Total	$1,751,611.74

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. X-109. Filed June 1, 1938.

(Testimony of Wallace B. Boggs.)

Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: This schedule is a credit that we discovered Six Companies entitled to. I don't know whether they are going to object or not.

Q. Mr. Boggs, I have just handed you a schedule purporting to show certain items for which credit should be allowed to the Six Companies, apparently for work which was not allowed under any estimate because it had not been completed at the time when any estimate was made, but had been partly completed under the contract, no allowance had been made and since this case the work has been completed and you have had an opportunity to go over your books, the District's books, these matters have been discovered, so you have prepared this tabulation. It is in addition to any credits that were allowed in the original cross-complaint and answer filed: that is correct, is it not? A. Yes

Q. That was preliminary. Mr. Boggs, is this schedule an accurate listing of all the work which was done by Six Companies and for which no allowance was made on any estimate?

Mr. Smith: You asked if it was an accurate statement. [2081]

A. Yes.

Mr. Alexander: I think, in order to avoid any confusion, we will make the same objection on all of the grounds.

(Testimony of Wallace B. Boggs.)

The Court: The same ruling.

Mr. Alexander: Exception.

Mr. Smith: He only testified it was a correct statement.

Mr. Tinning: Q. Is this amount, $2806.55 an amount which should be credited to Six Companies?

Mr. Smith: I object to the question on the same grounds as previously stated.

Mr. Alexander: We make the same objection.

The Court: Overruled.

Mr. Smith: Note an exception.

Mr. Alexander: Note an exception.

A. Yes.

Mr. Tinning: We offer this schedule in evidence as Defendant's Exhibit X-110, it being the same document which the witness has just testified to.

Mr. Alexander: We object to that on the same grounds.

The Court: The same ruling.

Mr. Alexander: Exception.

Mr. Smith: We join in both the objection and exception.

(The document was marked "Defendant's Exhibit X-110.")

DEFENDANT'S EXHIBIT X-110

SCHEDULE SHOWING AMOUNTS WITHHELD FROM SIX COMPANIES OF CALIFORNIA AND NOT APPEARING IN ANY ENGINEERS' ESTIMATE UNDER CONTRACT DATED JUNE 4, 1934, FOR UNITS OF WORK PARTLY PERFORMED BUT NOT COMPLETED.

No.	Item	Quantities		Contract Prices	Amounts at Contract Prices
3	Structural Excavation, Class "A"	400	cu. yds.	@ $1.20	$ 480.00
5	Shoulders	1,780	sq. ft.	@ 0.035	62.30
7	Structural Steel	6,931	lbs.	@ 0.05	346.55
8	Concrete Structures, Class "A" Concrete	25	cu. yds.	@ 15.50	387.50
13	Penetration Oil Macadam Pavement	8,762	sq. ft.	@ 0.14	1,226.68
17	Concrete Gutters	54.1	sq. ft.	@ 0.25	13.52
43	Guard Rail	100	Lin. ft.	@ 0.80	80.00
44	Pipe Hand Rail	70	lin. ft.	@ 3.00	210.00
				Total	$2,806.55

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. X-110. Filed June 1, 1938. Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: Q. Mr. Boggs, I hand you a schedule which purports to be a computation of some costs of the construction of the project based on the unit prices set forth in the June 4, 1934, contract between Six Companies of California and Joint Highway District No. 13, and the units of

(Testimony of Wallace B. Boggs.)

work performed under all other contracts. The purpose of this exhibit, Mr. Alexander, is to arrive at the figure which would have been paid to the Six Companies of California if [2082] the quantities of work that were actually performed were completed. The contract price was on an estimated quantity as it was set up, and this tabulation shows the actual units of work which were performed, both by Six Companies and the people who followed them on the work, for the purpose of arrival at a figure as to what Six Companies would have been entitled to under their contract if they completed all of the units and the quantities of work this table has been worked out. Mr. Boggs, does the figure appearing at the bottom of this schedule, $3,671,785.95 correctly represent the amount that would have been paid to Six Companies of California had they completed the work under the contract and done the units of work that were actually performed by them and all of the other contractors in the completion of the project of the District?

Mr. Smith: We object for all of the reasons stated previously.

Mr. Alexander: We make the same objection, your Honor.

The Court: For the purpose of the record the objection will be overruled.

Mr. Alexander: We note an exception.

Mr. Smith: We also note an exception.

(Testimony of Wallace B. Boggs.)

A. Yes.

Mr. Tinning: Q. That is the amount that would have been received by Six Companies if it had done all of the work at contract prices that was actually performed, both by itself and the other contractors?

Mr. Alexander: We make the same objection.

Mr. Smith: The same objection.

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

A. Yes. [2083]

Mr. Tinning: We offer this schedule in evidence as Defendant's Exhibit X-111.

Mr. Alexander: We make the same objection.

The Court: The same ruling.

Mr. Alexander: Exception.

Mr. Smith: We join in the objection and exception.

(The document was marked "Defendant's Exhibit X-111.")

[Set forth in the Book of Exhibits at page 580.]

Mr. Tinning: Q. Mr. Boggs, I hand you now a schedule which is apparently a computation of the amount claimed by Joint Highway District No. 13 of the State of California from Six Companies of California for the completion of the project, which is a tabulation of the claims of the District, is it not, and how it is computed—this is a preliminary question. A. Yes.

(Testimony of Wallace B. Boggs.)

Q. Does this tabulation correctly show the balance paid by the District for the completion of this project and the amount claimed by the District for excess cost of construction?

Mr. Smith: Just a moment, I object to that question on the same grounds previously stated and each and all of them.

Mr. Alexander: We make the same objection.

The Court: The objection is overruled.

Mr. Smith: Exception.

Mr. Alexander: I note an exception.

Mr. Tinning: We offer in evidence the schedule showing the balance claimed by the District from Six Companies under the cross-complaint for the excess cost of construction in the sum of $108,066.31, and ask that it be marked Defendant's Exhibit X-112.

Mr. Alexander: We make the same objection.

The Court: The same ruling.

Mr. Alexander: Exception.

Mr. Smith: We join in the objection and exception. [2084]

(The document was marked "Defendant's Exhibit X-112.")

DEFENDANT'S EXHIBIT X-112

Schedule, Computation of Amount Claimed by Joint Highway District No. 13 of the State of California from Six Companies of California, for Completion of the Project.

Amount earned by Six Companies of California (Estimate No. 25)	$2,511,499.72
Amount paid to Contractors by District under Contracts for Schedules "A", "B", "C", "D", "E", "F", "G" and "H"	1,751,611.74
Total under all Contracts	$4,263,111.46
Credit to Six Companies of California for retained percentage and checks returned to District	$ 480,452.61
Credit incomplete work not allowed on Six Companies of California estimates	2,806.55
Total paid by District under all Contracts	$3,779,852.30
Computed Construction Cost at Six Companies of California contract prices	3,671,785.99
Balance claimed by District from Six Companies of California for cost of construction	$ 108,066.31

(Testimony of Wallace B. Boggs.)

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. X-112. Filed June 1, 1938. Walter B. Maling, Clerk, by J. A. Schaertzer, Deputy Clerk.

Mr. Smith: Might I make a point that has been suggested to me by my associate, in order that there be no question about it in the record we desire to add to our objection to this line of testimony that so far, and particularly the last exhibit offered, that the same is at variance with the allegations of the cross-complaint, and not receivable for that reason.

Mr. Alexander: We add the same objection.

The Court: Let me follow that, that it is in variance with the allegations of the cross-complaint?

Mr. Smith: As to the amount.

Mr. Tinning: As to the amount, that is true.

Mr. Wittschen: That is what I want to correct to conform to the proof. We have alleged it in here at $69,000 and now we put it in $108,000 and we intend to correct the figures.

The Court: It would be well to amend it now for the purpose of the record.

Mr. Smith: We shall object to any attempt to amend the pleadings at this time on all reasons we have previously stated, and on the ground that it is an improper variance and also not in keeping with the allegations.

Mr. Alexander: We make the same objection.

(Testimony of Wallace B. Boggs.)

Mr. Wittschen: The only variance that there is is a difference in figures, because the figures in the cross-complaint were gotten up before the work was completed, and that is not a variance, it is just a change from one figure to another; these figures occur probably a dozen times in various items in the counter-claim and in the cross-complaint and if you would like at this time I will move to amend the pleadings in the particulars that I have specified; I have already shown them to counsel and they have got it on their copies, so they are not surprised. Shall I go through the cross- [2085] complaint and read into the record the changes we want?

The Court: If you can agree on a memorandum you have gotten up——

Mr. Wittschen: It is not a memorandum. We just changed it on the face of the pleading.

The Court: Just so it is covered.

Mr. Smith: There are many objections to it. One, of course, is they have a verified cross-complaint and verified answer and counter-claim and they are changing figures ad lib and raising the amount thereof some $40,000, and I do not see how a verification on that kind of a document can stand.

The Court: His explanation for that is that this work was discovered after he obtained the files; nothing else was done under the circumstances.

Mr. Smith: But a man cannot offer an affidavit to a pleading like that.

(Testimony of Wallace B. Boggs.)

The Court: Not always, but under the circumstances here I have no doubt that he can.

Mr. Wittschen: Might I suggest to your Honor that we are not trying to do anything——

The Court: I understand, I want to give the other side an opportunity to object.

Mr. Wittschen: I think their last objection that there is a variance is not well taken, because certainly you can prove the amount of your damage and then amend to conform to the proof. Perhaps that amendment ought to take the form of a new verification; if counsel is getting that technical we will get it for him.

The Court: My thought is you might not if it was a greater sum; of course, there would be no difficulty about it as long as it is a less amount than the prayer of your complaint. [2086]

Mr. Wittschen: We have increased it.

The Court: I want to give the other side a full opportunity, that is all I had in mind.

Mr. Wittschen: On page 19 we allege the State of California had contributed to the project $600,000. Now we want to change that to $700,000, which is the proof. Undoubtedly nobody could be hurt by that change.

Mr. Smith: We are not talking about that particular item.

Mr. Wittschen: In some cases we have given credit and in some cases we have made debits.

The Court: In any event the amount is definite?

(Testimony of Wallace B. Boggs.)

Mr. Wittschen: Yes, and they conform to proof that will come in. There are two ways to do it. One is to let the proof go in and amend the pleadings to conform to the proof, and the other to amend it on its face. Mr. Tinning is an officer of the District, and he says he can initial the changes or, if your Honor thinks that it requires verification, we can have the Secretary.

The Court: There is no question about that.

Mr. Smith: I do not doubt for a minute they could get people to re-verify it, but I am making the point that the amendment is of such a character that it raises the prayer of their complaint, and one of the reasons the law hedges around——

The Court: That is one of the reasons I suggested the amendment now before the proof goes in.

Mr. Wittschen: May I do that, read it into the record, the changes that we wish to make, so that nobody will be surprised?

Mr. Smith: Is your Honor allowing it to be done?

Mr. Wittschen: He has not heard what it is yet.

The Court: I have not heard what it is. Indicate for the record the purpose of your offer. [2087]

Mr. Wittschen: It is our purpose to amend the cross-complaint by taking out certain figures that are contained therein and substituting in lieu thereof figures which I will read. The reasons for that are that the cross-complaint was filed before the project had been completed and before the

(Testimony of Wallace B. Boggs.)

actual cost of various matters had been accurately ascertained and these amendments are offered to conform to what we will now prove.

On page 19, line 17, strike out the figures $600,-000 and insert in lieu thereof $700,000.

On page 20, line 29, strike out the figures $49,-024.65 and insert in lieu thereof $47,944.33.

On page 21, line 1, strike out the figures $4467.08 and insert in lieu thereof the figures $5,134.22, and in each case all of these figures are to be preceded by a dollar sign.

On line 5 strike out the figures $1300 and insert in lieu thereof $1862.45.

The same page, line 14, strike out the figures $8150 and insert in lieu thereof $14,060.85.

On line 16, same page, strike out the figures $62,-941.73 and insert in lieu thereof the figures $69,-001.85.

On page 22, line 4—this is the insertion of several words, because we are allowing that credit of $2,-806.55 that was mentioned by the witness—after the figures 1936 insert the words "As per estimate."

Line 5, same page, after the word "to" insert the words "also a credit for plaintiff of $2806.55 for partly performed work."

Same line, same page, strike out the words "$490,-452.61" and insert in lieu thereof the figures "$493,-259.16."

After the period at the end of line 5, change the period to a comma and insert the words "less $10,-

(Testimony of Wallace B. Boggs.)

000 liquidated damages retained [2088] by defendant." The explanation of that is that we had charged that twice and that is to correct that.

On line 8, page 22, strike out the figures "$1,725,000" and insert in lieu thereof "$1,751,611.74".

On line 11, same page, strike out the figures "$552,568.72" and insert in lieu thereof "$579,180.46."

Line 12, same page strike out the figures "$490,452.61" and insert in lieu thereof the figures "$483,259.16." Immediately after those figures insert parenthesis before the word "the".

Line 14, insert the words after the word "contract," "less liquidated damages of $10,000 retained," with a parentheses.

Line 14, strike out the figures "$62,116.11" and insert in lieu thereof "$108,066.31."

That is all in the counter-claim.

We now come to page 25, line 27, strike out the figures "$82,000" and insert in lieu thereof "$89,832.67."

Page 26, line 2, strike out the figures "$62,914.73" and insert in lieu thereof "$69,001.85."

Line 6, same page, strike out the figures "$62,116.11" and insert in lieu thereof, "$108,066.31."

Line 9, same page, strike out "$216,500" and insert in lieu thereof "$206,500." That is to take care of the $10,000 penalty and reduces the claim $10,000.

(Testimony of Wallace B. Boggs.)

Line 11, strike out the figures "$341,557.84" and insert in lieu thereof the figures "$383,568.16."

Page 33, line 11, strike out the figures "$49,-024.65" and insert in lieu thereof "$47,944.33."

Line 14, same page, strike out the figures "$4,-467.08" and insert in lieu thereof the figures "$5,-134.22."

Line 18, same page, strike out the figures "$1300" and insert in [2089] lieu thereof the figures "$1,-862.45."

Line 27, same page, strike out the figures "$8150" and insert in lieu thereof "$14,060.85."

Line 29, same page, strike out the figures "$62,-941.73" and insert in lieu thereof the figures "$69,-001.85."

On line 17, page 34, after the figures "1936" insert the words "as per estimate."

On line 19, after the word "to" insert the phrase "also a credit for plaintiff of $2806.55, for partly performed work."

Line 19, strike out the figures "$490,452.61" and insert in lieu thereof the following figures and phrase: "$493,259.16, less liquidated damages $10,-000 retained by defendant."

Line 22, page 34, strike out the figures "$1,725,-000" and insert in lieu thereof "$1,751,611.74."

Line 25, on same page, strike out the figures "$552,568.72" and insert in lieu thereof the figures "$579,180.46."

(Testimony of Wallace B. Boggs.)

Line 26, same page, strike out the figures "$490,-452.61" and insert in lieu thereof the figures "$483,-259.16."

After those figures on line 26 insert a parenthesis before the word "the".

On line 28, after the word "contract" insert the words "less liquidated damages of $10,000 retained" and close with a parenthesis.

Line 28, same page, strike out the figures "$62,-116.11" and insert in lieu thereof "$108,066.31."

On page 37, line 29, strike out the figures "$288" and insert in lieu the figures "$272.89."

On page 38, line 9, strike out the figures "$82,-000" and insert in lieu thereof, "$89,832.67."

Page 38, line 16, strike out the figures "$62,-941.78" and insert in lieu thereof the figures "$69,-001.85."

Line 18, same page, strike out the figures "$62,-116.11" and in- [2090] sert in lieu thereof the figures "$108,066.31."

Line 22 of the same page, strike out the figures "$216,500" and insert in lieu thereof the figures "$206,500."

Line 24, same page, strike out the figures "$341,-557.84" and insert in lieu thereof, "$383,568.16."

Last page, page 39, first line, strike out the figures "$341,557.84" and insert in lieu thereof "$383,-568.16."

The same page, line 6, strike out the figures "$341,557.84" and insert in lieu thereof the figures "383,568.16."

(Testimony of Wallace B. Boggs.)

It is understood that all of the figures refer to dollars and cents and all of the amounts are to be preceded by a dollar sign. We now ask, if your Honor please, that our cross-complaint may be amended in the particulars specified in order that the amounts therein originally stated may be changed to the new amounts in order to conform to proof which we will now offer, and that I may make these changes on the original complaint and have them initialed by the clerk.

Mr. Smith: To which we object for the reasons already stated.

Mr. Wittschen: Might I ask do you waive the necessity of our having the re-verification, or do you stand on that?

Mr. Smith: As far as I am concerned I do not think it would add anything. I notice that the man that verified it is dead.

Mr. Wittschen: Don't you think we could have another secretary verify it? As a matter of fact, a public body does not have to verify it.

Mr. Smith: I just mentioned that to show what bad practice it is.

Mr. Alexander: We join in the objection.

The Court: The objection will be overruled.

Mr. Alexander: We note an exception.

Mr. Smith: We note an exception. [2091]

Mr. Alexander: We have here a new complaint radically different, different to the extent of some $42,000, and I think something should be said or

(Testimony of Wallace B. Boggs.)

done to protect the rights of the various cross-defendants. They have put in new figures.

Mr. Smith: How about our answers?

Mr. Wittschen: Your answers may be deemed a denial without further changing your pleadings. You have denied them, anyway.

Mr. Alexander: It is not sufficient that our answers be deemed a denial. We have many special defenses that we are entitled to urge to these as well as originally.

The Court: What is the point of your objection?

Mr. Alexander: The point is this, they have here what is an amended cross-complaint.

The Court: Yes.

Mr. Alexander: Which they have just put in. We have to have a pleading to it, and I think that new matters should be denied and all of the matters urged in our answers should be deemed pleaded to this cross-complaint as amended.

The Court: Would a denial cover it all?

Mr. Alexander: No, a denial would not. We have pleaded a lot of special defenses.

The Court: I am trying to be helpful to both sides here in getting this record up. Have you any suggestions?

Mr. Wittschen: I will stipulate, I thought I had, when Mr. Alexander interrupted me, when I said they might be deemed denied. I will stipulate that the answers as filed by the respective cross-defendants to the cross-complaint before these amendments

(Testimony of Wallace B. Boggs.)

were made may be deemed answers to the cross-complaint as amended.

Mr. Alexander: And that the new matters be deemed denied?

Mr. Wittschen: Yes.

The Court: Let the record so show. [2092]

Mr. Wittschen: May I have the original and make the changes so that the Clerk may initial them?

The Court: You may have it. Now proceed, gentlemen. [2093]

Mr. Alexander: If we can interrupt just a moment—maybe we have taken an exception,—I am not certain; but may the record show we have excepted?

The Court: Let the record show an exception.

Mr. Smith: If there are not enough in there already, I will add one myself.

Mr. Tinning: Q. Mr. Boggs, following your testimony of this morning——

The Court: I think, when the new rules come out, about September, there will be a rule covering it, so this nuisance will be at an end.

(Discussion, off record.)

Mr. Tinning: Q. During the period from June 13, 1936, to and including the 9th of November, 1936, the date that the first new contract was let, to Pollock & Clifford, for the driving of the tunnel, did the District perform any work in the tunnels for the protection of the work?

(Testimony of Wallace B. Boggs.)

Mr. Smith: Just a minute. I make the same objection, your Honor, as made heretofore to this line of questioning.

Mr. Alexander: We join in the objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes.

Mr. Tinning: Q. What did this work include, Mr. Boggs?

Mr. Smith: Same objection.

The Court: Same ruling.

Mr. Alexander: Same objection.

Mr. Smith: Exception.

Mr. Alexander: Exception. [2094]

The Witness: A. This work performed by the District included the furnishing of materials and supplies and the performance of certain work.

Mr. Tinning: Q. What was the work; what did you do?

Mr. Smith: The same objection.

The Court: The same ruling.

Mr. Alexander: Same objection.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. We placed concrete footings in the tunnel from the end of the concrete footings which had existed prior to the stoppage of work on June 13, 1936, and extended those footings to the face of the core excavation.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: Q. Did you gunite the timber rings? A. The timbers—

Mr. Alexander: May I just ask that the objection go the entire line, or may I make a suggestion to Mr. Tinning which won't be a part of the record?

(Private discussion between Mr. Tinning and Mr. Alexander.)

Mr. Tinning: Q. Mr. Boggs, to try to shorten this up: It is a fact, is it not, that the District had to put in concrete footings for the purpose of maintaining the area where timbers were installed and concrete had not yet been placed; that guniting was done; that the timbers had to be maintained in the thousand or more feet of drifts that ran to the east portal; and that watchmen had to be employed, engineers had to be employed, in connection with this work that was being done there, so that the entire tunnel which was left on June 13th could be maintained without danger of falling down and caving in? A. Yes. [2095]

Mr. Alexander: Wait a minute.

Mr. Smith: The question is objected to on the same grounds as previously stated.

Mr. Alexander: We join in the objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

Mr. Tinning: Q. What was the cost of the work of protection and maintenance during the period referred to?

(Testimony of Wallace B. Boggs.)

Mr. Smith: Same objection.

Mr. Alexander: Same objection.

The Court: Same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. $47,944.33.

Mr. Tinning: Q. Did the District, in preparing the new specifications, have to make extensive measurements of the work that remained to be done and procure materials and supplies for doing that work, including preparation of blueprints and specifications?

Mr. Smith: Same objection, on the same grounds as previously urged.

Mr. Alexander: Same objection.

The Court: Same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes.

Mr. Tinning: Q. What was the cost of measuring the work and completing the specifications after the resumption of work?

Mr. Smith: Same objection.

Mr. Alexander: Same objection [2096]

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. $5,134.22.

Mr. Tinning: Q. Did the District readvertise for contracts to secure contractors to complete the work?

(Testimony of Wallace B. Boggs.)

Mr. Smith: Same objection; and, in addition, we object on the ground that the items in question could not be in any way charged against us as a cost of doing the work.

Mr. Alexander: Same objection.

The Court: Same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes.

Mr. Tinning: Q. What amount was paid by the District to readvertise the work?

Mr. Smith: Same objection.

Mr. Alexander: Same objection.

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. $1,862.45.

Mr. Tinning: Q. Did the District procure fire insurance, explosion insurance, liability insurance, fidelity insurance and Workmen's Compensation Insurance during the period mentioned?

Mr. Smith: Objected to on the same grounds.

Mr. Alexander: Same objection.

The Court: Same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception. [2097]

The Witness: A. Yes.

Mr. Tinning: Q. What was paid by the District for such insurance?

Mr. Smith: Same objection.

Mr. Alexander: Same objection.

(Testimony of Wallace B. Boggs.)

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. $14,060.85.

Mr. Tinning: Q. And the total cost of the items which I have just questioned you about is how much, Mr. Boggs?

Mr. Smith: Same objection.

Mr. Alexander: Same objection.

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. $69,001.85.

Mr. Tinning: Q. This document which you hold in your hand was prepared from the District's records by Mr. Ernest Brotherton, a certified public accountant who had been employed by the District to regularly audit the records from the time the District had any records, or at least from the time the work started? A. Yes.

Mr. Alexander: Same objection.

The Court: Same ruling.

Mr. Alexander: Exception.

The Witness: A. Yes.

Mr. Tinning: We offer the schedule which the witness has just been referring to in evidence as Defendant's Exhibit X-113.

Mr. Smith: To which I will object upon the reasons previously stated. [2098]

(Testimony of Wallace B. Boggs.)

Mr. Alexander: And we join in the objection.

The Court: Objection overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

(Document marked "Defendant's Exhibit X-113.)

[Set forth in the Book of Exhibits at page 584.]

Mr. Tinning: Q. In addition to the work of protection which you have just referred to, Mr. Boggs, did the District maintain a staff, following the 24th day of May, 1936, up to and including the time that the work was actually finished?

The Court: Q. You may answer "Yes" or "No."

Mr. Smith: That is a preliminary question.

The Court: That is a preliminary question.

Mr. Smith: That is a preliminary question.

The Witness: A. Yes.

Mr. Tinning: Q. It is a fact, is it not, that under the provisions of the Joint Highway District Act when the project is finished that the jurisdiction of the District, or the power of the District, over the road ceases and it becomes a public highway subject to the county or the state, whoever has jurisdiction?

Mr. Smith: Before the witness answers, I will object to that question as calling for a legal opinion of the witness and calling purely for a conclusion of law.

Mr. Alexander: I join in the objection.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: Your Honor, I think it is within the judicial knowledge of the Court that the Act provides that when the project is completed a certificate by the Director of the Department of Public Works is issued, and the jurisdiction over the road ceases in the District and belongs to the county.

The Court: Is that a fact, gentlemen?

Mr. Smith: Well, we won't concede that, your Honor.

Mr. Tinning: Well, the Act so specifies. [2099]

Mr. Smith: Whatever the law specifies, of course, is a matter of interpretation by the Court.

The Court: Just so we have a record on it.

Mr. Tinning: This is Section 32 of the Joint Highway District Act of 1931 under which this District functions (reading Section 32.)

Q. During the period following the 24th day of May, 1936, did the District continue to employ engineers, an office force, and maintain watchmen, and procure materials and supplies and expense for its operation?

Mr. Smith: I make the objection on all the grounds previously urged; and, in addition, I urge the further objection that the testimony sought to be elicited by the question would be proof or an attempted proof of damages which are speculative and not in any manner within the purview of any theory on which they might recover under this cross-complaint.

Mr. Alexander: We join in the objection.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: The purpose of this offer, your Honor,—we have pleaded as one of the matters in this defense the penalty of $500 per day. We are offering this line of testimony to show, for instance, what the daily cost of operation of the District was. We also expect to offer proof with respect to the bond interest, and also with respect to the loss to the public by the fact they were unable to use this tunnel during the certain period of time. Now, that proof simply goes to the point of the penalty being somewhere within striking distance of the actual loss incurred.

The Court: How is the Court going to measure that?

Mr. Tinning: I don't think the Court does, your Honor. I think, if we are entitled to a penalty, that the thing then is to determine the penalty itself is not unreasonable. [2100]

Mr. Smith: What did your Honor say? I did not hear your remark.

The Court: I inquired how the Court was going to determine any damage for the public using, or the failure to use, this tunnel. He answered that by saying it has to do with the penalty and the imposition of the penalty. The penalty itself is prescribed by——

Mr. Tinning: Yes, by that contract.

Mr. Smith: If they want to call it a penalty, let them accept that as his definition. The law in California provides you cannot enforce a penalty. I un-

(Testimony of Wallace B. Boggs.)

derstood the theory was they were trying to recover on the basis of liquidated damages. They have no right to recover any penalty. The law is as clear as a bell on that, particularly because penalties are absolutely proscribed under our California law. You cannot recover a penalty. The assertion is made, in their cross-complaint, that it is a claim for liquidated damages.

The Court: I think we are confused. I don't think he expects to go beyond the penalty clause here.

Mr. Tinning: We don't expect to go beyond the liquidated damage clause. What we are showing is: it is part of the contract and it is not an unreasonable provision, in view of the situation that exists.

The Court: If you have any argument about it, or any confusion about it, I will let it come in subject to a motion to strike and over the objection of counsel.

Mr. Smith: Exception.

Mr. Alexander: We note an exception.

Mr. Tinning: Q. What was the average cost per day, Mr. Boggs, for operating the District from May 25, 1936, to November 30, 1937?

Mr. Smith: Might I ask you a question, Mr. Tinning, for the [2101] purpose of clearing the record? Is November 30th the day when the project was completed?

Mr. Tinning: Yes.

Mr. Smith: And the work was completed?

Mr. Tinning: We checked out on the 30th.

(Testimony of Wallace B. Boggs.)

Mr. Smith: Your position is, for the record, that the project was completed on that day?

Mr. Tinning: Yes; and we have already stated that; we only expect to run until July 31st; but to give you your average we are taking the whole period.

Mr. Smith: I was interested in November 30th. So, we can consider that an admission by you that that was the date of completion?

The Court: When did you notify the state and county of the completion?

Mr. Tinning: I think, the workmen stopped there on the 1st of December.

Mr. Smith: Mr. Kelly's certificate which you offered in evidence here a while ago is dated November 30th.

Mr. Tinning: I think that is the date. The reason we had that transmitted, as I understand it, or as I remember it, was that November 30th was a Saturday, following Thanksgiving, and then we had to get Mr. Kelly's certificate and bring it down to the State Highway Commission meeting on the 3rd of December and get this thing taken over by the state so we could open it by the 5th, as a state project. Mr. Smith, I don't want to——

Mr. Smith: I just want to get that date.

Mr. Tinning: I think the date was that. It is not an admission, because I am not sure of that.

Mr. Smith: What date do you say it was completed? I would like [2102] to know.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: I think, as a matter of fact, that the actual date of completion of the project was the 30th day of November.

Mr. Smith: Well, that is satisfactory. I will accept that.

Mr. Tinning: That is my recollection.

The Court: He indicates that is the date you notified Kelly.

Mr. Smith: No; that is the date Kelly certified to them that he accepted it as a completed project, according to the statement.

Mr. Tinning: Has the objection been overruled?

The Court: Overruled.

Mr. Tinning: Q. What was the average cost per day? Did you answer the question?

A. $272.899.

Mr. Smith: Another thing: we would like to object to the line of testimony, particularly on this exhibit; we have not had a chance to examine the details included therein, and we don't want any testimony in here without having a chance to——

The Court: The thought struck me a moment ago. That exhibit is available; you can supply them with copies?

Mr. Tinning: I have supplied them with copies. I suppose it goes in subject to check, if there is anything wrong.

Mr. Wittschen: Let us have an understanding: we did this at your suggestion; we don't want you to claim error when we put it in in this way by

(Testimony of Wallace B. Boggs.)

stipulation that we have done something we should not. You can have every opportunity to check. We are doing it along the lines by which you proved your case, with an understanding between us that, in any of these matters, you can go over them if you want to and make any corrections if there are any errors in them. That opportunity is always open to you. That is understood, isn't it?

Mr. Smith: Certainly.

Mr. Tinning: And Mr. Brotherton is in the room; I can put him [2103] on; but it will take a lot of time.

Mr. Smith: I am not trying to have you do that at all.

The Court: It is subject to any corrections hereafter that you desire to make.

Mr. Smith: It has been received subject to a motion to strike, anyway.

Mr. Alexander: No; it has not gone in yet.

Mr. Tinning: The testimony is; and I am just going to put the document in.

The Court: He is laying a foundation.

Mr. Tinning: Q. Mr. Boggs, that document that you have just been referring to is an audit of the District records, with respect to the items which you have just testified to, which was made by Mr. Brotherton, the same man who made the other statement that you have testified to? A. Yes.

Mr. Tinning: We offer in evidence, if the Court please, the document from which the witness has

(Testimony of Wallace B. Boggs.)

just been giving his testimony with respect to $272.899 per day average cost of operating the District.

Mr. Smith: To which we make the same objection.

Mr. Alexander: We join in the objection.

The Court: Same ruling.

Mr. Alexander: Exception.

Mr. Smith: Exception.

(The document was marked "Defendant's Exhibit X-114.")

[Set forth in the Book of Exhibits at page 595.]

Mr. Tinning: Q. Mr. Boggs, has Mr. Brotherton made a computation of the cost per day for interest on the bonds of the District during the period from May 24, 1936 to July 31, 1937?

Mr. Smith: Well—that is a preliminary question? [2104]

Mr. Tinning: Yes.

Mr. Smith: Ask him to answer it "Yes" or "No," so we may make an objection.

The Witness: A. Yes.

Mr. Tinning: Q. I show you a table of interest calculations, Mr. Boggs. You have been over this before. This is the data that was prepared by Mr. Brotherton from the District records?

A. Yes.

Q. What was the amount of interest that was paid on the bonds of the District for the period from May 24, 1936, to June 13, 1936?

(Testimony of Wallace B. Boggs.)

Mr. Smith: Just a minute. We object upon all grounds previously stated and, in addition thereto, on the ground they would have to pay their interest on their bonds no matter what the situation was with regard to any construction work. They have put out their bond issues. The bonds contain a provision for payment of interest and the terms and conditions of the bond issue remain constant no matter what the situation may be with regard to any work they are doing or not. [2105]

Mr. Wittschen: Well, we did not have the use of the tunnel.

Mr. Smith: That would make no difference in the bonds whatever, because they do not depend on the use of the tunnel.

Mr. Tinning: It is a measure of the loss of the value to the public. You rent a house and you use it for a year, or you cannot use it for a year because of some difficulty, maybe the contractor is slow in finishing it for you if you are building a house, and you have to pay rent. That is certainly one of the elements——

The Court (Interrupting): The Court is prepared to rule.

Mr. Alexander: We want to join in the objection, your Honor.

Mr. Smith: We object on the ground it calls for guess-work, speculation, and the thinnest kind of proof as to the allegation of damages.

(Testimony of Wallace B. Boggs.)

The Court: This testimony will go in subject to the objection of counsel and subject to a motion to strike out.

Mr. Smith: Exception.

Mr. Alexander: Exception.

Mr. Tinning: Q. What was the amount of interest for the period from May 24th to June 13th, 1936, paid by the District on its bonds?

A. $4,149.32.

Q. For the period from June 14th, 1936 to November 9th, 1936, what was the interest?

Mr. Smith: The same objection.

Mr. Alexander: The same objection.

The Court: The same ruling.

Mr. Alexander: Exception.

Mr. Smith: Exception.

A. $30,912.40.

Mr. Tinning: Q. For the period from November 10, 1936 to July 31, 1937, what was it?

Mr. Smith: We make specifically the objection that was made to [2106] the first question upon this feature, and on the ground of objections specified in the other testimony on this line.

Mr. Alexander: We join in the objection.

The Court: I will allow it to come in as I have indicated, subject to a motion to strike and over the objection of counsel.

Mr. Smith: Exception.

The Court: That is the testimony on interest on the bond indebtedness.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: Q. The total of the figures which you have here, Mr. Boggs, is $89,832.68.

The Witness: Yes.

Mr. Tinning: We offer this tabulation in evidence, if the Court please, as Defendant and Cross-complainant's Exhibit in proper order.

Mr. Smith: Objected to upon the same grounds as hitherto stated.

Mr. Alexander: We join in the objection.

The Court: It will come in subject to the same ruling.

Mr. Alexander: Exception.

Mr. Smith: Exception.

(The document was marked "Defendant's Exhibit X-115.")

DEFENDANT'S EXHIBIIT X-115

Joint Highway District No. 13 of the State of California

Interest Calculations—Interest on Bonded Indebtedness

Interest becomes due and payable on the 2nd days of January and July of each year. Bonded redemptions made on the 2nd day of January of each year.

Interest from January 2, 1936 to January 2, 1937, amounts to $75,-725.00, or $207.46575 per day.

(Testimony of Wallace B. Boggs.)

Interest from January 2, 1937 to January 2, 1938, amounts to $69,800.00, or $191.23288 per day.	
For 20 days—May 24, 1936 to June 13, 1936, the interest cost is	$ 4,149.32
For 149 days—June 14, 1936 to November 9, 1936, the cost is	30,912.4
For 264 days—November 10, 1936 to July 31, 1937, the cost is	54,770.96
Total	$89,832.68

[Endorsed]: U. S. Dist. Ct. of N. D. Cal. No. 20101-R. Deft's Ex. X-115. Filed June 1, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Mr. Tinning: Q. Mr. Boggs, it appears from the tabulation that the interest per day from the period January 2, 1936 to January 2, 1937, amounted to $202.46 per day.

Mr. Smith: Objected to on the ground the interest appears on the tabulation. I object to it upon that ground and the other grounds.

Mr. Alexander: The same objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

A. Yes.

Mr. Tinning: Q. From the period January 2, 1937 to January 2, [2107] 1938 the interest was $191.23 per day.

(Testimony of Wallace B. Boggs.)

Mr. Smith: The same objection.

Mr. Alexander: The same objection.

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes.

Mr. Smith: I take it those last two questions and answers were subject to your Honor's ruling that it is subject to a motion to strike?

The Court: Subject to a motion to strike, I indicated that before.

Mr. Tinning: Q. Mr. Boggs, do you know what the travel over the Tunnel Road, both ways, both east and west, was according to the traffic count taken by the State of California in the year 1936, the average daily traffic?

Mr. Smith: Just a minute. I will object to that on all the grounds previously stated, and as obviously calling for information which has about as much to do with this case as the amount of traffic, you might say, that went over the road between Salinas and Watsonville, or between Sacramento and Truckee, or any other place.

The Court: Well, I will give you time to argue that. I am allowing this testimony to come in over the objection of counsel and subject to a motion to strike.

Mr. Alexander: May we join in the objection, your Honor? Exception.

Mr. Smith: Exception.

(Testimony of Wallace B. Boggs.)

Mr. Wittschen: In showing liquidated damages you cannot do that without—you have to have a penalty to show——

Mr. Smith: Will it be stipulated there has never been any toll [2108] charged for the use of the highway?

Mr. Wittschen: Certainly.

Mr. Tinning: Well, it is a fact, but we can ask the witness.

Q. This is a free public highway, this tunnel was built by the District, Mr. Boggs? A. Yes.

Q. It is also true that the routes that existed prior to and now exist, that were used prior to the time this project, this Broadway Tunnel project was built, were all free public highways?

A. Yes.

Q. What was the average daily traffic?

Mr. Smith: Objected to on the same ground.

Mr. Tinning: Over the Tunnel Road to which the Broadway Tunnel was available, would it have been available to use if it had been completed in 1936?

Mr. Smith: Objected to further upon the ground it calls purely for a speculative conclusion of the witness. There is absolutely no basis for any witness in the world testifying whether anybody would have used it or not used it in 1936.

Mr. Alexander: I join in the objection.

Mr. Smith: It is pure guess-work.

(Testimony of Wallace B. Boggs.)

Mr. Wittschen: If a man travels upon the roads immediately adjacent to it——

The Court: You better develop the fact, then.

Mr. Tinning: We have a man here from the State, if counsel wants to go into that phase of it. I though Mr. Boggs could testify to it.

Mr. Smith: Well, you have some language in your question, would the traffic available have used this road.

Mr. Tinning: No, I did not say whether it would have used it. I said if it was available for use what traffic——

Mr. Smith: I think if you would read the question, I think it is vicious in its present form.

Mr. Tinning: Q. Mr. Boggs, what was the travel over the Tunnel [2109] Road in 1936 which used the routes that were then available for crossing the hills from Contra Costa County into Alameda County for which the Broadway Low Level Tunnel is a substitute, a present substitute?

Mr. Smith: Objected to upon the ground it assumes something not in evidence, calls for speculative conclusions of the witness, and upon all the grounds previously urged.

The Court: I will allow it to come in subject to a motion to strike.

Mr. Alexander: We join in the objection.

The Court: The objection will be overruled.

Mr. Alexander: Exception.

Mr. Smith: Exception.

(Testimony of Wallace B. Boggs.)

A. 1,911,870 vehicles annually.

Mr. Tinning: Q. That is based upon a daily average of how many? A. 5238.

Q. How much was the saving of distance by the Broadway Low Level Tunnels over the prior existing routes?

Mr. Smith: The same objection.

The Court: The same ruling.

Mr. Alexander: The same objection.

Mr. Smith: Exception.

Mr. Alexander: Exception.

A. An average of 2 miles.

Mr. Tinning: Q. What is the computed value, or cost of the use, or the loss by reason of the fact these 1,911,870 vehicles were unable to use the tunnel in 1936?

Mr. Smith: Objected to on all the grounds previously urged and also on the ground it calls for an opinion and conclusion of the witness, on a subject-matter which is one which is purely within the province of the Court to adjudge if the subject be at all proper [2110] to pass upon in this action; also upon the ground there is no foundation laid and no showing this witness has any knowledge of the subject.

The Court: If they insist on the foundation being laid it is better to do it, gentlemen.

Mr. Alexander: We join in the objection.

Mr. Tinning: Q. Mr. Boggs, as a part of your duties as engineer on this project you made traffic

(Testimony of Wallace B. Boggs.)

estimates upon which the Government or the State of California have acted? A. Yes.

Q. Were those traffic estimates based upon the counts taken by the State of California of vehicles over this route and other routes? A. Yes.

Q. Have those counts been taken annually or semi-annually by the State of California for several years last past?

A. Annually for the last two years and semi-annually prior to that.

Q. This is a state-wide count that was taken by the State? A. Yes.

Q. On this particular route, the Tunnel Road, were those counts taken during the same time the State was taking the other counts? A. Yes.

Q. Under the direction and control of what department, was it the Department of Public Works of the State of California? A. Yes.

The Court: We will conclude for the day, and since we made such rapid headway this afternoon I suggest you remain in session for the next half hour to see if there are not many other things that you can handle in as rapid a fashion as you did today. We will take a recess until tomorrow morning at ten o'clock.

(An adjournment was here taken until tomorrow, Thursday, June 2, 1938, at ten o'clock a. m.) [2111]

(Testimony of Wallace B. Boggs.)

Thursday, June 2, 1938;
10 O'Clock A. M.

WALLACE B. BOGGS,

recalled.

Direct Examination (Continued)

Mr. Tinning: Before we resume the line of questioning of yesterday afternoon, Mr. Boggs, I would like to ask you a question or two about Defendant's Exhibit 114. The schedule referred to is the schedule that was introduced yesterday, Mr. Boggs, to support the figures that you testified to: $272.899 per day as the average cost of operating the District during the period May 25, 1936 to November 30, 1937. I would like to call your attention to the supporting schedules that are attached to this exhibit, and, for the purpose of this question, to the third page of those supporting schedules, which is headed "Description of Charge," and which column appears to contain a short description of the various items of expenditures which were made by the District for the District operation and which were not attributed or listed in the cost of maintenance and protection that were direcly attributable under the District's claim to the Six Companies' cessation of work.

Q. Are all of the charges set forth, for example, some of the charges starting under Voucher No. 1085, "Insurance on Instruments, Plumb Bobs, Office Rent, May Expense," and, with respect to

(Testimony of Wallace B. Boggs.)

May expense, those are the travelling expenses of the various employees of the District which are allowed by the District to those employees during the period referred to; is that correct?

A. Yes.

Mr. Tinning: Just a moment before you answer the question.

Mr. Smith: Just ask a question first, so I can object.

Mr. Tinning: Q. Are those the travelling expenses of people——

Mr. Smith: If you are asking a question, I will object upon the reasons already stated: that the testimony is not admissible, on the same grounds urged yesterday in connection with this line of [2112] testimony concerning which your Honor ruled you would admit it subject to a motion to strike out.

Mr. Alexander: We join in the objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness A. Yes.

Mr. Tinning: Q. All of the items which are listed under "Description of Charges," all of the items set forth in this account, are items which you testified yesterday,—and I again ask you to wait for the answer until I finish,—which are listed in this schedule for the purpose of showing items which were necessary expenses of the District during the

(Testimony of Wallace B. Boggs.)

period it was necessary for the District to run, after Six Companies ceased operations on June 13, 1936 and up to November 30, 1937 when the work was completed?

Mr. Smith: Same objection.

Mr. Alexander: Same objection.

The Court: The objection will be overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes.

Mr. Tinning: Q. Mr. Boggs, is the sum of $272.899 the reasonable cost, in your opinion, for operating the District,—the average daily reasonable cost of operating the District, from the 25th day of May, 1936, to the 30th day of November, 1937?

Mr. Smith: To which we make the same objection.

Mr. Alexander: We join in the objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes, sir. [2113]

Mr. Tinning: If your Honor please, I am going to ask leave to add a few exhibits to those put in yesterday under the omnibus clause, in view of one of Mr. Smith's questions with respect to Mr. Kelly's certificate, and, in fairness to counsel, I will say that, before we knew that Mr. Alexander felt that he would have to take the position he has taken,—which we are not criticizing,—I had understood the

(Testimony of Wallace B. Boggs.)

key document would be satisfactory to these gentlemen. As it has developed there may be some question about that, I desire to put the supporting documents in with respect to the completion of the work, the documents which show the action of the District and the various officers, as required by the provisions of Section 32 of the Joint Highway District Act which I read yesterday.

I offer in evidence, as defendant's exhibit in proper order, the affidavit and certificate of the District Engineer that the Joint Highway District project is completed, which affidavit the record will show, from the exhibits put in yesterday, that Mr. Kelly's certificate was filed with the Director of the Department of Public Works of the State of California on the 30th day of November, 1937, the document now offered being the certificate and affidavit of the District Engineer dated November 29, 1937.

Mr. Smith: Will you add them all together in your offer at the same time, so we can make one objection?

Mr. Tinning: Yes. Counsel states a suggestion that we put in another small omnibus offer.

The Court: Put them in together.

Mr. Alexander: Mr. Tinning, we did not suggest you put them in.

Mr. Tinning: No; but, if they are offered, that is the way it is suggested they be offered.

Mr. Alexander: Yes.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: We also offer the resolution of board of directors of Joint Highway District No. 13 of the State of California which [2114] recites the execution of the affidavit by the District Engineer with the State, the issuance and filing of the certificate with the Director of the Department of Public Works of the State of California dated November 30, 1937, which resolution certifies that the District project is completed in accordance with law, and which resolution was passed on the 1st day of December, 1937.

We also offer in evidence the certificate of C. E. Wade, County Clerk of the County of Alameda, certifying that a certified copy of the resolution of the board of directors of the Joint Highway District last referred to was filed by the Board of Supervisors of the County of Alameda on the 2nd day of December, 1937.

We also offer the certificate of S. P. Wells, County Clerk of the County of Contra Costa, certifying a certified copy of the resolution of the board of directors of the Joint Highway District that the job is complete, which resolution was filed on the 1st day of December, 1937, filed with the Contra Costa County Board of Supervisors on the 2nd day of December, 1937.

I ask that all these documents go in as one exhibit under the proper designation,—Defendant's Exhibit X-116.

(Testimony of Wallace B. Boggs.)

Mr. Smith: To which offer we object on the same grounds that we objected to the admission of Exhibit X-5 to Exhibit X-100, inclusive, namely, that the evidence offered is incompetent because it does not pursue the method which the contract prescribes exclusively in connection with the performance of the work of completing the construction of the project, and upon all the other grounds which we mentioned in objecting to the admission of the indicated number of exhibits.

Mr. Alexander: We join in the objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception. [2115]

(The group of documents was marked "Defendant's Exhibit X-116.")

[Set forth in the Book of Exhibits at page 630.]

Mr. Tinning: Q. Mr. Boggs, referring to your testimony of yesterday, to Defendant's Exhibit X-113, I ask you if, in your opinion, the sum of $69,001.85, the total of the cost of maintenance and protection of the work mentioned, the work of measuring the work to complete the project, readvertising and insurance, as set out on the table forming a part of the exhibit and attached to Exhibit X-113, is the reasonable value of the cost of the protection and maintenance and other items referred to in the question.

Mr. Smith: To which we will object on the grounds—all the other grounds we have heretofore

(Testimony of Wallace B. Boggs.)

urged in objecting to the proof of this particular group of items, and, in addition, that that subject matter is not properly the subject of expert testimony and, therefore, that the question is further objectionable as calling for the opinion and conclusion of the witness on a matter which is not susceptible of opinion and conclusion testimony.

Mr. Alexander: We join in the objection.

Mr. Wittschen: May I ask a question there? Do you object to the fact that we put in one sum total, because probably, if you do, we ought to take up the various figures and make up a table and ask upon each one of those if it is reasonable and so forth? But, if you don't make that objection——

Mr. Smith: No; I have not made that objection; I specifically did not.

The Court: The objection does not go to the form as it is presented?

Mr. Smith: No.

The Court: Objection overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes. [2116]

Mr. Smith: Your Honor, may the record be clear that this particular character of testimony about this subject where you admitted all the basic testimony subject to a motion to strike, I take it your same ruling applies to this?

The Court: Yes; it comes in over your objection and motion to strike. If it develops in argument

(Testimony of Wallace B. Boggs.)

there is something here that I am not satisfied with, why, I will rule it out.

Mr. Tinning: Q. Mr. Boggs, in your opinion was the cost of completing the work under Schedules "A" to "H", inclusive, in the contracts referred to and listed in Defendant's X-109, the total sum being $1,751,611.74, the reasonable cost of completing the project of the District under contracts on the cessation of work by Six Companies on the 13th of June, 1936?

Mr. Smith: To which question we will object on the ground the testimony is immaterial and for the reasons heretofore urged along that same line of testimony.

Mr. Alexander: We join in the objection.

The Court: The objection will be overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes.

Mr. Tinning: Q. I show you Exhibit X-115, simply for the purpose of some figures that appear on here. Mr. Boggs, what is the number of days, from June 14, 1936, to November 19, 1936?

A. 149 days.

Q. What is the number of days from November 10, 1936 to July 31, 1937? A. 264 days.

Q. In your opinion, was the period of 149 days, —the period from and including June 14, 1936 to November 19, 1936,—the reasonable period of time

(Testimony of Wallace B. Boggs.)

for the District to measure the work, readvertise it and [2117] get it under contract again?

Mr. Smith: Just a moment. We will object to the question on the ground it calls for testimony which is inadmissible for the reasons heretofore urged as to this line of testimony.

Mr. Alexander: We join in the objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes.

Mr. Tinning: Q. Was the period of time from and including November 10, 1936 to July 31, 1937 a reasonable period of time for the completion of the work on the project of the District remaining to be done after cessation by Six Companies of California under contract?

Mr. Smith: Same objection.

Mr. Alexander: Same objection.

The Court: Same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes.

Mr. Tinning: Q. Now, Mr. Boggs, we will return to the matter that we last had under consideration in yesterday's session. In addition to the computation of the traffic count that you referred to yesterday in connection with this particular project, I will ask you if, in your work as an Assistant County Surveyor of Alameda County, you at vari-

(Testimony of Wallace B. Boggs.)

ous times and as part of those duties ever took traffic counts and used the same in engineering and economic problems in connection with road construction. A. Yes.

Q. What average cost per mile in making such computations do you attribute to each automobile or vehicle using the road? [2118]

Mr. Smith: Objected to on the same grounds that we objected to the evidence yesterday, and, in order to shorten it, I won't repeat it, concerning this type of testimony.

Mr. Alexander: We join in the objection.

The Court: Overruled.

Mr. Smith: Exception.

The Court: It will come in subject to a motion to strike and over the objection of counsel.

The Witness: A. Four cents per vehicle mile.

Mr. Tinning: Q. Using those figures, Mr. Boggs, where the annual traffic which you testified to yesterday that used the route in question,—1,911,870 vehicles annually gave an average vehicle use of the road 5,238 per day,—what is the economic value or figure of the use of that route per day?

Mr. Smith: We will object to that upon the same grounds as heretofore urged, and object on the further ground the question is compound and uncertain.

Mr. Alexander: Same objection.

Mr. Tinning: I think the last part of the objection is good.

The Court: That element of economics,—that field you are going into,—be careful about that.

(Testimony of Wallace B. Boggs.)

Mr. Tinning: We will withdraw the question, in view of its viciousness.

Q. Mr. Boggs, multiplying the average number of vehicles by the average cost per vehicle of the saving in distance of the route provided by the Broadway Low Level Tunnel route over the previously used routes, what is the saving per day by the use of the Broadway Low Level Tunnels on the traffic count figures which you have testified to?

Mr. Smith: Just a moment. We will object to that on the ground [2119] it absolutely calls for pure speculative answers and conclusions of the witness, and also it is based on a state of facts not in evidence and has nothing to do with the issues involved, in addition to the objections we made to this whole line of testimony.

Mr. Alexander: Same objection.

The Court: May the Court inquire, at this time: the purpose of this offer is what?

Mr. Tinning: The purpose of the offer is to show, your Honor, the difficulty of estimating the amount of actual damage that will accrue to the District and the public if there is delay on this work; and it is for that purpose that this line of testimony, as stated yesterday, is offered. As we understand the law of liquidated damages, the damages must be reasonable; and we have a right, where it is difficult,—extremely difficult,—to estimate the actual loss, to stipulate in a contract for liquidated damages and, in showing there was a reason for

(Testimony of Wallace B. Boggs.)

such stipulation, we think we have a right to go into these things.

The Court: This is off the record.

(Discussion, off record by direction of the Court.)

[2120]

The Court: Indicate for the record the purpose of the offer.

Mr. Wittschen: As I understand the California rule of damages, while liquidated damages can only be allowed when actual damages are difficult of exact ascertainment, they also must be reasonable. Counsel has made two objections. One is that liquidated damages should not be allowed at all, and I think perhaps they have in their minds that the actual damage could be proved. We offer this testimony not to get a judgment against them for the inconvenience that the public suffers in an exact amount, but to show that there is a real loss and inconvenience and that the damage is difficult or impossible of exact ascertainment. So much for this particular evidence that is in now, to show the difficulty as to liquidated damages. Then on the other item that the District suffers by each day that it must continue in operation beyond the day it would have continued had the contract been completed in time, and in order to show the monetary loss on the bonds, we offer that as proof of the actual loss for the same purpose as the other, to show that the amount of liquidated damages is reasonable, or to show somewhat the difficulty of exact ascertainment.

(Testimony of Wallace B. Boggs.)

but that damage as to those two last items, they are specific and they are accurate, so that your Honor will have that information before you.

Mr. Smith: We renew our objection.

Mr. Alexander: We make the same objection.

The Court: The objection is overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

Mr. Tinning: Q. Mr. Boggs, will you answer?

A. $419.04 a day.

Q. 149 days from and including June 14, 1930 to and including November 9, 1936, and the 264 days from and including November 10, 1936 [2121] to and including November 30, 1937, aggregate the sum of 413 days, do they not?

Mr. Smith: The same objection.

Mr. Alexander: The same objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

A. Yes.

Mr. Tinning: Q. Your last testimony, or all of the testimony with respect to the traffic is only for the specific purpose of supporting the theory that we have announced here that we are entitled to liquidated damages as we do not think liquidated damages and actual damages are the same item. Mr. Boggs, it is true, is it not, that on or about the 22nd day of May, 1934, after public tender of the bonds of the District by the Board of Directors, that the

(Testimony of Wallace B. Boggs.)

District issued and sold after proceedings duly and regularly had by the District its bonds in the sum of $2,378,000?

Mr. Smith: Objected to on the same grounds that the evidence previously was objected to.

Mr. Alexander: The same objection.

The Court: The objection will be overruled.

Mr. Smith: Note an exception.

Mr. Alexander: Note an exception.

A. Yes.

Mr. Tinning: Q. And those bonds were 15-year bonds consisting of $158,000 in the first fourteen series and $167,000 in the last or fifteenth series?

Mr. Smith: The same objection.

Mr. Alexander: The same objection.

The Court: The same ruling.

Mr. Smith: Exception. [2122]

Mr. Alexander: Exception.

A. Yes.

Mr. Tinning: Those bonds are unconditionally payable by the District irrespective of whether or not the project of the District was completed?

Mr. Smith: The same objection.

Mr. Alexander: The same objection.

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

A. Yes.

Mr. Tinning: Q. And the District has regularly paid those bond maturities that became due in 1935, 1936, 1937 and 1938 on the 2nd day of January?

(Testimony of Wallace B. Boggs.)

Mr. Smith: The same objection.

Mr. Alexander. The same objection.

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

A. Yes.

Mr. Tinning: Q. And also the interest on all of the bonds that were issued on or after May 22nd as the same became due under the terms of the bond issue?

Mr. Smith: The same objection.

Mr. Alexander: The same objection.

The Court: The same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

A. Yes.

Mr. Tinning: Q. After allowing to the plaintiff Six Companies of California all of the credits to which it was entitled, Mr. Boggs, [2123] is the sum of $108,066.31, set forth in the last figure on Defendant's Exhibit X-112 the reasonable increased cost of completing the District's project?

Mr. Smith: To which question we object on the same grounds as we objected to the admission of the said Exhibit X-112.

Mr. Alexander: We join in the objection.

The Court: The objection is overruled.

Mr. Smith: Note an exception.

Mr. Alexander: Note an exception.

A. Yes.

Mr. Tinning: You may cross-examine.

(Testimony of Wallace B. Boggs.)

Cross Examination

Mr. Smith: Q. Taking Exhibit 114, Mr. Boggs, what is the nature of the items Expenses opposite about 1111 under the four items on the third page of the exhibit?

A. Those are traveling expenses authorized by the District to be paid.

Q. Traveling expenses of yourself.

A. Of myself.

Q. What would be the nature of the traveling expenses?

A. That would be mileage from my office to the various parts of the job.

Q. The west end of the job is located in Oakland, where you had your office? A. Yes.

Q. The east end of the job was three or four thousand feet? A. In Contra Costa County.

Q. Just through the tunnel in the other end?

A. Yes.

Q. Then, as I understand it, your answer is that the expense included your running back and forth from your office and house to the work in an automobile?

A. No, not to my house; only from the office, downtown office, to the job.

Q. What is the nature of the item with regard to the three names next appearing, Barkley, Collins and Hunter?

A. Those are the same [2124] type of expenses, traveling expenses between the office and up and down the work on the job.

(Testimony of Wallace B. Boggs.)

Q. What is the nature of the comptroller's bond? Is that an official bond exacted by the Board of Directors from their Comptroller and the payment of the premium on the bond? A. Yes.

Q. What is the expense item E. H. Frisell?

A. Mr. E. H. Frisell was an inspector on the work and he was entitled to traveling expenses.

Q. What is this Alhambra Water Company? Did they serve water to the office? A. Yes.

Q. What did you buy water from the Alhambra Water Company for?

A. For drinking purposes.

Q. What is the nature of the expense items of Campbell, Driggs, Hammer, Hunt, Ray, Riggs, Loomer and Morin?

A. Those also are traveling expenses on the job.

Q. And what is the nature of the item in June of Braun-Knecht-Heiman Co., Chapman Flask? What does that mean?

A. That is for the purchase of a piece of equipment which was used in the testing of some of the material which went into construction work.

Q. Now, does the statement in the column which is the third column from the left-hand side of the page of the exhibit which you have before you, namely, page 3, does that purport to state the general nature of the expenditures involved in the items in question? Does that purport to be descriptive in a general way of the nature of the expenditures?

A. Yes.

(Testimony of Wallace B. Boggs.)

Q. And the name in the second column, there, is the name of the party to whom the expenditure was made: is that right?

A. Yes, in accordance with the voucher.

Q. Wherever in the same exhibit expenses that you have described in connection with any of the individuals whose names I have read, [2125] and about which I have asked you, is the expense of the same kind that you just testified? A. Yes.

Mr. Smith: That is all.

Mr. Alexander: I have some questions.

Q. What changes were made from the original specifications in Schedules A to H?

A. There were no changes made, Mr. Alexander, in the construction of the work. The only change which was involved was the breaking down of the work into 8 schedules and providing for the payment thereof to conform to those schedules.

Q. So, as I understand it, the schedules mean eight different contracts? A. Yes.

Q. And in each case the payment was made to a contractor based on a contract? A. Yes.

Q. The contract included the contract price, profit and whatever else was in it?

A. The contract price.

Q. Now, taking the project, itself, that was finished about what time?

A. December 1, 1937.

Q. That is, the entire project was completed at that time? A. Yes.

(Testimony of Wallace B. Boggs.)

Q. In December of 1936, when the cross-complaint was filed, the project had not been completed, had it? A. No.

Q. How far from completion was it in December, 1936?

A. Mr. Alexander, I do not know just how to answer that. There was work done on all parts of the project and there was practically nothing of the project that was fully completed.

Q. That is a good enough answer. By December, 1936 how much work had been done between June 13, 1936 and December, 1936, when the cross-complaint was filed?

A. There had been no work done by the contractor, by any contractor during that period.

Mr. Tinning: What date in December?

Mr. Alexander: I will get to the exact date when the cross-complaint was filed. The cross-complaint was filed December 16, 1936. [2126] On that date what part, if any, of the eight schedules had you completed?

A. None of those schedules had been completed.

Q. Had any of them been begun?

A. Yes, work on Schedule A had been begun.

Q. How much work was done on Schedule A?

A. The contractor had been working for seven or eight days at that time.

Q. Now, after the contract was completed and all the schedules were completed and the project completed did you make a final estimate of the cost?

(Testimony of Wallace B. Boggs.)

A. Yes.

Q. That was made sometime after November 30, 1937, was it not? A. Yes.

Q. Not before that time? A. No.

Q. Did the District ever give any notice to the cross-defendant sureties companies of that final estimate? A. Not to my knowledge.

Q. Now, taking June 13, 1936, you have that date in mind? A. Yes, very well.

Q. At that time how much of the retained percentage did the District have?

A. 10 per cent, according to the contract.

Q. And how much of the Six Companies' money did the District then have? Can you give us the approximate figure?

Mr. Tinning: I think we had better have the exact figure.

Mr. Wittschen: We put them in.

Mr. Alexander: You have the figures, let us get them.

The Court: We will take a recess for a few minutes. [2127]

(After Recess)

Mr. Tinning: Q. Have you got the figures you need, Mr. Boggs? A. Yes.

Cross Examination

Mr. Alexander: Q. Mr. Boggs, on June 13, 1936, how much did the District hold of retained percentages?

Mr. Tinning: Q. On June 13th, Mr. Boggs.

(Testimony of Wallace B. Boggs.)

The Witness: A. Yes. $251,149.97.

Mr. Alexander: Q. That is explained by the fact that, as Six Companies earned, 10 per cent was withheld? A. Yes, sir.

Q. And that withheld money has never been paid to Six Companies? A. No.

Q. Now, as of the same date, according to your figures, how much had Six Companies earned in May of 1936?

A. I am sorry; I have not that figure in front of me, Mr. Alexander.

Mr. Tinning: I will give it to him.

Mr. Alexander: May I look at that figure? Maybe we can get it the same way. I will reframe the last question.

Q. Now, in addition to the figure of $251,149.97 retained percentages, what other monies have been withheld by the District belonging to Six Companies?

A. The amount of Estimate No. 24, the estimate dated June 10th, of $148,586.98, and the estimate for work from June 1st to June 13th amounting to $80,715.66. These last two items were—the checks were tendered——

Q. Pardon me. Just answer the question.

Mr. Tinning: I think he has a right to explain it.

Mr. Alexander: Q. All right, go ahead.

A. The last two checks were tendered to Six Companies and returned by them.

(Testimony of Wallace B. Boggs.)

Q. Then there is a total aggregate of monies of Six Companies retained by the District amounting to how much?

Mr. Tinning: There was. [2128]

The Witness: A. $480,452.61.

Mr. Alexander: Q. And that has never been paid, except as you stated? A. That is correct.

Mr. Alexander: That is all.

Redirect Examination

Mr. Tinning: Q. Mr. Boggs, when you say, as you stated to Mr. Alexander, it was paid to the other contractors who finished the work and was deducted from the amount of the increased cost and made a figure of $108,066.31? A. Yes.

Mr. Alexander: To which we will object on all the grounds asserted and made to this line of questioning.

The Court: Overruled.

Mr. Alexander: Exception.

Mr. Smith: We join in the exception.

The Witness: A. Yes.

Mr. Tinning: Any further questions, gentlemen?

Mr. Smith: No questions.

JOSEPH BARLOW LIPPINCOTT,

called by the defendant and cross-complainant; sworn.

Direct Examination

Mr. Tinning: Q. Mr. Lippincott, you reside in Los Angeles? A. I do.

Q. You graduated from the University of Kansas in 1887 as a Bachelor of Science, and you are a member of the American Society of Civil Engineers? A. Yes.

Q. And for all the years since 1887 you have engaged in engineering work? A. I have.

Q. Both as an active construction manager and as a consultant? A. Yes, sir.

Q. You were employed for many years by the United States, in its [2129] Reclamation Service, were you not? A. Yes.

Q. You made the first survey of locations of the Hetch Hetchy project for San Francisco?

A. I did that, but not for the Reclamation District. That was private work.

Q. Private work? A. Yes.

Q. You have been employed in the capacity of a consultant on many tunnel projects in the past years, have you not?

A. Yes, I have been actively in charge of the work and also as a consultant engaged in such work.

Q. At the present time, you are a consultant for the City of Los Angeles on its Mono Water Development project, are you not? A. Yes, sir.

(Testimony of Joseph Barlow Lippincott.)

Q. You have been a consultant for the City of Los Angeles in its water development work over a great many years, have you not?

A. Yes, over 35 years.

Q. In the Mono project which is now under construction, as I understand it, there are many tunnels, or many miles of tunnels?

A. No; not on the Mono project proper. There is one very large tunnel, and one small—two small tunnels.

Q. Which is now under construction?

A. Yes.

Q. You were employed by this District,—Joint Highway District No. 13,—in August, 1935, were you not? A. Yes, sir.

Q. And you have made frequent visits to the project of the District since that time?

A. About twenty.

Q. You were familiar with the problems to be met by the District on and following June 13, 1936, at the time Six Companies of California ceased work on the project? A. Yes.

Q. From your experience as an engineer, will you state whether or not, in your opinion, the increased cost after allowing Six Companies the credits for the retained percentages, and other credits, the [2130] sum of $108,066.31 is a reasonable sum?

Mr. Smith: Just a minute. We will object to this question upon all the grounds heretofore urged in objecting to this line of testimony before.

(Testimony of Joseph Barlow Lippincott.)

Mr. Alexander: Same objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. The additions and subtractions to arrive at that $108,000 I am not fully familiar with. I am familiar with a figure of 1,751,000 and some odd dollars which was the cost of completion. The figure that I last referred to was $1,751,-611.74.

Mr. Tinning: Q. That is the cost of the work under the contracts for Schedules A, B, C, D, E, F, G and H? A. Yes.

Mr. Smith: Same objection.

Mr. Alexander: Same objection.

The Court: Same ruling.

Mr. Smith: Exception.

Mr. Alexander: Exception.

Mr. Smith: I ask that the objection and the exception be noted prior to the answer.

Mr. Alexander: May that be done, your Honor?

The Court: It may be done.

Mr. Tinning: Cross-examine, gentlemen.

Mr. Smith: No questions.

Mr. Wittschen: Just a moment, please.

Mr. Tinning: Q. Mr. Wittschen suggests that I did not make my question broad enough. In your opinion, Mr. Lippincott, is the sum of $1,751,611.74 paid to the Contractors by the District under Sched-

(Testimony of Joseph Barlow Lippincott.)

ules A to H, all letters inclusive, the reasonable value of the [2131] cost of completion of the work remaining to be done after Six Companies left the work on the 13th of June, 1936?

Mr. Smith: To which we want to interpose the same objection as heretofore made.

Mr. Alexander: I join in the objection.

The Court: Overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. In my opinion, it is a reasonable figure.

Mr. Tinning: Cross-examine.

Mr. Smith: No questions.

Mr. Alexander: No questions.

H. A. VAN NORMAN,

called by defendant and cross-complainant; sworn.

Direct Examination

Mr. Tinning: Q. Mr. Van Norman, you reside in Los Angeles? A. Yes.

Q. What is your occupation?

A. I am at present the Chief Engineer and General Manager of the Bureau of Public Works and Supplies for the City of Los Angeles.

Q. How long have you been connected with the Bureau of Public Works with the City of Los Angeles? A. Since 1907.

(Testimony of H. A. Van Norman.)

Q. During that time, have you been actively participating in the development of the water system of the City of Los Angeles as an engineer?

A. Yes. I might qualify my first answer to the extent that for a period of about 2½ years, from 1923 to 1936, I was City Engineer of the City of Los Angeles on leave of absence from the Water Department.

Q. During the period of your work, have you had to do with the estimating of the cost of the work done by your Department? A. Yes. [2132]

Q. During that period, have you had experience with the construction of tunnels?

A. Yes.

Q. You were employed by Joint Highway District No. 13 of the State of California in August of 1935, prior to the time that the slide occurred?

A. Yes, just prior.

Q. Since that time, Mr. Van Norman, have you frequently visited the work of the tunnels on the Broadway Low Level Tunnel project?

A. Yes; I made occasional, frequent trips.

Q. Were you familiar with the problems that confronted the District on or about June 13, 1936, with respect to proceeding with the construction of this work after Six Companies ceased work on that date? A. Yes, sir.

Q. Are you familiar with the work that was done by the contractors who completed the project

of the District under Schedules A, B, C, D, E, F, G and H? A. Yes.

Q. In your opinion, was the sum of $1,751,-611.74, paid by the District for the completion to the contractors, for the completion of that work, a reasonable sum?

Mr. Smith: Just a moment. We object to that question on all the grounds heretofore urged to the same type of testimony.

Mr. Alexander: We join in the objection.

The Court: Objection overruled.

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. Yes, I consider that figure a reasonable one for the cost of the completing of the work.

Mr. Tinning: Q. Do you consider the sum of $108,066.31, the increased cost of the work to the District, the reasonable figure?

Mr. Smith: Same objection.

Mr. Alexander: Same objection.

The Court: Overruled: [2133]

Mr. Smith: Exception.

Mr. Alexander: Exception.

The Witness: A. If that sum is confined to the construction work only, my answer is "Yes."

Mr. Tinning: Q. Well, I will show you Defendant's Exhibit X-112,—which is a tabulation of the amount that was earned by Six Companies, the amount that was paid to the contractors who finished, and less the credits to Six Companies for the

(Testimony of H. A. Van Norman.)

retained amounts by the District, and a credit for incompleted work appearing on no estimate.

A. With that explanation, my answer is "Yes."

Mr. Tinning: You may cross-examine, gentlemen.

Mr. Smith: No questions.

Mr. Alexander: No questions.

Mr. Wittschen: That is our case.

Mr. Tinning: Any rebuttal?

Mr. Smith: No.

Mr. Wittschen: At this time, if the Court please, the evidence on all issues being closed, the defendant and cross-complainant moves, again, as it did before, and incorporates in this motion, a motion for judgment and special findings as that motion was heretofore made at a session of this Court on Friday, May 27, 1938; and, in addition thereto, the cross-complainant now moves the Court for a judgment in its favor against the plaintiff and cross-defendants, and against each of the other surety cross-defendants that are still in the case, moving for a judgment against the plaintiff for the full amount of its cross-complaint and for a judgment against each of the sureties respectively for that amount [2134] for which they are liable under the

bond which is in evidence in this case; and the defendant and cross-complainant moves separately for a judgment in its favor on each and every and all of the issues raised by the cross-complaint and the answer of the plaintiff and cross-defendant, and also the answers or answer of the respective surety companies, and on each and every one of the separate defenses that are raised in the respective answers.

This motion is made upon the ground that, the Court having decided the plaintiff had no right to rescind the contract but in effect abandoned it, a cause of action for the damages the defendant and cross-complainant sustained springs from that breach, and on the further ground that the defendant and cross-complainant is entitled to damages for the increased cost of completing the work as one item for the cost of protecting and maintaining the work, as those items have been specially pleaded and proven, and also for liquidated damages at the penalty prescribed in the amount of $500 per day. We are not asking for special damages for delay, but rely upon the penalty for liquidated damages.

Findings embodying each of these questions will be prepared and filed, and we ask for special findings and special conclusions of law in our favor on each and every and all of the issues, and ask that judgment be rendered in the amount prayed for in the prayer of the cross-complaint as amended against the plaintiff for the full amount and against

each of the sureties for their proportionate amount respectively.

The Court: May I inquire: What does the record disclose in relation to the sureties?

Mr. Wittschen: The sureties, in their answer, admit the execution of the contract, and, of course, as part of our original complaint, a letter was written to each of the sureties—— [2135]

The Court: That is in the record already?

Mr. Wittschen: Yes; and the surety companies stipulate they did not complete the contract, and they were notified.

Mr. Smith: We will have opposition to the motion, of course; but, before discussing that motion and making a further motion, we desire to make a motion to strike; and, to enable me to make a more accurate statement of the motion, I have written it out but will not file it, but will read it into the record.

Plaintiff and cross-defendant moves to strike from the record in the case the evidence given and offered through the witness Wallace B. Boggs concerning

(a) Cost of employing engineers, office force, watchmen, and procuring materials and supplies for operation of the District after June 13, 1936;

(b) Cost or expense to the District for interest on its outstanding bond issue during any period after June 13, 1936;

(c) Amount of traffic over the so-called Tunnel Road, or evidence concerning alleged damage to public from non-completion of the project of the District on or before May 24, 1936.

The evidence so objected to commences at approximately line 7 on page 1671 of the transcript, beginning with the question: "During the period following the 24th day of May, 1936, did the District continue to employ engineers, etc.?" and continues down to and including the question: "Under the direction and control of what department—was it the Department of Public Works of the State of California?" on page 1682 of the transcript; and this motion is directed to all thereof beginning at the page and place noted and ending at the page and place noted.

Also, to supplement what I have written out, the motion is likewise directed to the testimony adduced here this morning along [2136] the same lines, concerning the same subjects which I have mentioned, and, of course, I am not able to give a page number of the record because we have not yet been furnished with the typewritten record; but this motion is directed to the evidence which I specifically pointed out, as well as to what has been received this morning through the witness Boggs on the same subjects.

The evidence objected to and admitted subject to motion of plaintiff and cross-defendant to strike same is now moved to be stricken out upon the grounds that same is not proof in any manner of damage caused to cross-complainant by cross-defendant; also that the elements of damage sought to be established thereby are too remote and too speculative and not within the purview or rules of damages covering this subject; further that,

had it not been for the breach of the contract by the cross-complainant in improperly deducting penalties against the cross-defendant, all of the work would have been completed not later than January 3, 1937, which would have been the latest possible date when it would have been necessary for any of the elements covered by this evidence to have continued; further, that no matter whether cross-complainant was engaged in constructing its project or not it was liable for payments of its bond interest; that no revenue was derived by cross-complainant from the tunnels or project, and therefore no damage could have possibly been sustained by any delay in completion of same by Joint Highway District or by the public; that the evidence concerning the use of the highways by the public is purely speculative and guess work, and has nothing to do with any issues involved in this case; further, for the reasons stated by me, the evidence is incompetent, irrelevant and immaterial, and should be stricken from this case. [2137]

Mr. Alexander: The cross-defendant surety companies join in the motion to strike out on the same grounds.

Mr. Wittschen: Your Honor, so that the record may be clear, that portion of plaintiff's motion which is directed to the cost of protecting the work and taking care of the project until new bids were called is an element of damage that springs from the breach. The cost of the bond issue, the interest on the bonds, the cost as shown to the traveling

public, and those matters that counsel claims are speculative were not offered and we are not asking for those as specific items of damage. They were merely offered to show two things, one that the liquidated damages were not unreasonable, and also to show the difficulty of the proof of actual damages. The law in California is that where actual damages cannot be proven, or that their proof will be extremely difficult, the parties may agree upon reasonable stiuplated liquidated damages, and as I said before and now repeat we are not asking for double damages, we are not asking for damages in excess of the penalty of $500 a day, but we are asking for damages for that penalty because we think it is reasonable, and because it comes within the rule. And we rely upon the cases that are all in that last brief that I handed to your Honor, which I called "Defendant's First Supplemental Brief"—there are two or three cases in there that are squarely on the point; the latest, perhaps one of the best considered cases, is that City of Reading Case; and I have also put in numerous cases from California which hold that a penalty of this kind is proper or liquidated damages in lieu of the penalty.

Mr. Smith: We have other motions to make, and we think it would be better to get them all in.

Mr. Wittschen: Do you want a ruling on one at a time?

The Court: Do you desire the Court to rule now?

[2138]

Mr. Smith: It is entirely up to your Honor.

The Court: I want to analyze some of the phases in respect to damages, for instance, actual damages. If I follow counsel, the damages do not exceed the $500 a day?

Mr. Wittschen: Yes, if you will take the interest—

The Court: I am interested in the actual work.

Mr. Wittschen: The actual damages in a case of this kind, if your Honor please, cannot be proven. It is obviously true, as Mr. Smith has stated, that the Highway District, as a District—as Mr. Tinning has corrected me, the actual damages, of course, for increased cost can be proved and the actual damage for protecting the work can be proved, and as to those two items, one of which is $108,000 and the other $69,000, those are actual damages, and are proven, and they spring from the breach. The actual damages for delay cannot be proven. Take, for instance, the construction of a city hall, take a school building, it is impossible to show just what the inconvenience and damage would be to the public that want to use a new school building or to the public that wanted to use a city hall. We have merely shown, your Honor, we had several millions of dollars invested in this project, and that the cost on that alone amounted to more than $200 a day. We have also shown, your Honor, that the cost of keeping the District intact amounted to $278 a day. It is perfectly obvious that you cannot get that cost down to exact refinement. The District will have to keep some nominal assistance as long

as the bond issue holds; in fact, there would be no cost if the county would take that over, it is hard to say, the District may have to keep this force going for some days, even after this contract has been completed, to do certain check-up work. That $278 was not offered as an exact item of damage, and we are not asking your Honor to consider it an such, but the people who really lose the benefit of this tunnel [2139] are not alone the people residing in the District who use it, but they are the entire traveling public up and down the State.

The Court: It is my thought on that that we are getting into the realm of speculation.

Mr. Wittschen: That is why you have liquidated damage, because you cannot prove the actual damage; if the actual damages could be proven we would have to prove them, we could not have liquidated damages, and the Code provision provides, I think it is Section 1671 of the Civil Code—I will get it if your Honor wants it accurately.

The Court: I suggest that you submit your motion now, that is, if it does not interfere with what you have in mind.

Mr. Smith: What we had in mind was that the Court stated at the time we made the motion that you would like to pass upon it after argument, at the conclusion of the case. That is what your Honor has indicated, as I understood your Honor. I do not want to get into an elaborate argument, but we do not agree in any manner with counsel's statement that the law is as he says.

The Court: I might say that this case will go forward after I am through with it, and I want to do everything possible for me to do.

Mr. Smith: Your Honor is obligated to decide it in accordance with your conscience and the rules of law, but we have other motions to make, and we think we could make those and then argue the matter after lunch.

The Court: I think that would probably be the better thing to do.

Mr. Smith: Or argue it at a later date, or tomorrow morning. As I understand, it is stipulated now that all of the evidence is closed in the case.

Mr. Wittschen: That is correct.

The Court: On both sides? [2140]

Mr. Smith: Yes.

The Court: Very well, you can make your other motions and I will reserve my ruling on that.

Mr. Marrin: I have two motions to make. There is a counter claim in the answer as well as the cross complaint, and I think we should make the motions in both of those.

Motion of Plaintiff for Special Findings of Fact and Conclusions of Law and for Judgment in its favor on the counterclaims of defendant.

Plaintiff now moves the Court for a judgment in its favor on the counterclaims of defendant and on each of them, which counterclaims are set forth in the answer of defendant as a part of the fourth defense to the first count of the complaint on file herein and as a part of the fourth defense to the

second count of said complaint. Said motion is made on all of the following grounds:

I.

That the undisputed evidence in this case establishes substantial breaches of both express and implied conditions of the contract by the defendant, causing great loss and damage to the plaintiff in that defendant failed to make payment to plaintiff on June 10, 1936, at which time plaintiff was not in default in any manner in the performance of the contract, of the money due plaintiff from defendant under the contract for work done by plaintiff during the month of May, 1936, and by deducting from the money due plaintiff the sum of $500 per day for each day after May 24, 1936, and thereby declaring its intention to continue to breach said contract by failing to pay plaintiff the amount due it under said contract if plaintiff continued to perform same by further deduction of the sum of $500 per day until the work under said contract was completed on about the 3rd day of January, 1937, or a total deduction of [2141] $112,000.00, from money justly due plaintiff under the terms of the contract, to plaintiff's great injury and damage, thereby justifying its rescission of the contract.

II.

That the undisputed evidence establishes that the defendant failed and refused to give to plaintiff any extension of time within which to complete the per-

formance of the work under the contract, and that such refusal was wrongful and illegal because plaintiff had been unavoidably delayed in the performance of the work under the contract for a period of 300 days, or more, and had also been delayed in the performance of the work under said contract by reason of stormy or inclement weather, and had been delayed by operation of law, and plaintiff was thereby justified in rescinding the contract.

III.

That the undisputed evidence in this case establishes a substantial breach by the defendant of the contract in that the materials through and under which the tunnels were to be constructed were substantially different from those shown, or predicted, or represented in the geological report furnished to bidders, in the plans and specifications furnished to bidders, and in the contract and the specifications forming a part thereof entered into; and made the performance of the work much more difficult and expensive than it would have been had the materials corresponded with the materials predicted and represented by and in the geological report and the contract, plans and specifications; and thereby the warranty contained in the contract and relied upon by plaintiff in making same, as to the materials to be found through which the tunnels would be built, was breached to plaintiff's great injury and damage.

IV.

That the undisputed evidence in this case establishes construct- [2142] ive fraud on the part of the

defendant in inducing plaintiff to enter into the contract.

V.

That the undisputed evidence in this case establishes capricious and arbitrary conduct by the District Engineer of the defendant in failing and refusing to determine and adjudge that plaintiff was unavoidably delayed in the doing and performance of the work.

VI.

That the undisputed evidence in this case establishes that a gross mistake was made by the Engineer of the defendant District in failing and refusing to determine and adjudge that plaintiff was unavoidably delayed in the doing and performance of the work.

VII.

That the undisputed evidence in this case establishes that the defendant breached the contract by failing and refusing to give plaintiff proper lines and grades to work to in the construction of the tunnels.

VIII.

That the undisputed evidence in this case establishes that a mutual mistake was made by the plaintiff and defendant in entering into the contract in that plaintiff and defendant both believed that the ground through which the tunnels would be driven would be of self-supporting character for about 2,000 feet of the length of each of the tunnels; and both parties relied upon this fact in entering into

said contract; and in truth and in fact the ground through which said tunnels were driven was entirely nonself-supporting, but required artificial support throughout before and during the lining of the tunnels with concrete to the extent that it was impossible to remove such artificial support, thereby causing plaintiff great injury and damage. [2143]

That the undisputed evidence in this case establishes that plaintiff relied upon the information contained in the various documents furnished to it by defendant prior to bidding, including particularly the geological report, plans, and specifications, and planned the doing of the work covered by the contract in reliance upon the information so furnished that the ground through which the tunnels would be driven would be found to be self-supporting for the most part; and by reason of the fact that none of said ground was self-supporting, plaintiff was unable to construct the tunnels in accordance with its plans made in reliance upon the information furnished by the defendant, thereby causing great injury and damage to plaintiff.

X.

That the undisputed evidence shows that plaintiff did not abandon the contract but rescinded the same for material breaches thereof by defendant entitling plaintiff to rescind.

XI.

That the undisputed evidence shows that under the contract and particularly paragraph 5 thereof, defendant was required, in the case of abandonment of the contract by plaintiff, to complete the work itself and that the defendant did not do so, but caused the work to be completed by contracts which defendant entered into with other parties.

XII.

That the undisputed evidence shows that defendant is not entitled to recover any damages on account of any delay in the completion of the work.

XIII.

That the undisputed evidence shows that the alleged expense [2144] to the defendant was not determined in the manner provided in the contract and specifications and the plaintiff was never notified by the defendant of the excess, if any, so claimed to be due.

XIV.

That there is no evidence which would justify an award of damages in favor of defendant and against plaintiff.

Plaintiff moves for such judgment for each of the reasons hereinbefore stated and further moves the Court for special findings of fact in accordance with the allegations of plaintiff's complaint and each count thereof.

Plaintiff further moves the Court for conclusions of law that defendant take nothing by said counterclaim set forth as a part of the fourth defense to the first count of the complaint on file herein and that defendant take nothing by said counterclaim set forth as a part of the fourth defense to the second count of said complaint, and plaintiff further moves for judgment in favor of plaintiff separately on each of said counterclaims.

Plaintiff requests special findings on each and all of the issues raised by said counterclaims and each thereof which findings will hereafter be prepared and presented prior to the conclusion of the trial and will embody findings upon each and all of the issues raised by the pleadings.

Mr. Wittschen: Mr. Marrin, have you finished with that?

Mr. Marrin: I have finished.

Mr. Wittschen: Might I ask you a question? My theory of that is that the counterclaim is no longer in the case. In other words, a counterclaim is an offset against something which might be recovered by the plaintiff. I would agree with you that could be addressed to the cross-complaint, but don't you think the counterclaim falls unless the plaintiff recovers something against which a [2145] counterclaim could be off-set.

Mr. Marrin: Under the Code section in this State I think the Court has the power to give relief on the counterclaim. About the only difference between a counterclaim and a cross complaint is

you must answer a cross complaint and you do not have to answer a counterclaim.

Mr. Wittschen: May it be stipulated that the motion that we made with respect to the cross complaint may apply to the counterclaim, if you so construe the provision?

Mr. Marrin: You mean the motion you just made?

Mr. Wittschen: The motion I just made on the issues raised on the cross complaint and answers thereto, that it may also be understood to be made to the counterclaim, that we make the same motion with respect to judgment in our favor on the counterclaim?

Mr. Marrin: There is no objection to that. I am simply making these motions because I want to be certain to protect our rights.

Mr. Wittschen: We had not filed our motion, and I think you have filed yours. You make no point that ours was not filed, and the motion may be deemed in proper form without the necessity of that?

Mr. Marrin: My understanding is it is not required that you do file it.

Mr. Alexander: I want to join in that because I have not prepared a motion, and I will have to state mine orally.

Mr. Marrin: It is done for the purpose of accuracy.

The Court: I think the only purpose is, out of an abundance of caution so that you may have a complete record.

Mr. Marrin: I assume your Honor would prefer that I present these motions before you pass on them.

Mr. Wittschen: Your other motion is substantially similar, [2146] I have read it. It might save time if it was deemed read and copied into the record.

Mr. Marrin: It is stipulated it may be deemed read and copied into the record.

The Court: Is it identical?

Mr. Smith: It is identical except for certain changes.

Mr. Marrin: I believe there are one or two grounds at the end that are slightly different.

The Court: It may be deemed read and copied by the Reporter.

(Motion of Plaintiff and Cross Defendant, Six Companies of California, For Special Findings of Fact and Conclusions of Law and for Judgment in its Favor on the Cross-Complaint of Defendant and Cross Complainant.

Plaintiff and cross defendant, Six Companies of California, now moves the Court for a judgment in its favor on the cross complaint of defendant and cross complainant on all of the following grounds:

I.

That the undisputed evidence in this case establishes substantial breaches of both express and implied conditions of the contract by the defendant and cross complainant, causing great loss and dam-

age to the plaintiff and cross defendant in that defendant and cross complainant failed to make payment to plaintiff and cross defendant on June 10, 1936, at which time plaintiff and cross defendant was not in default in any manner in the performance of the contract, of the money due plaintiff and cross defendant from defendant and cross complainant under the contract for work done by plaintiff and cross defendant during the month of May, 1936, and by deducting from the money due plaintiff and cross defendant the sum of $500 per day for each day after May 24, 1936, and thereby declaring its inten- [2147] tion to continue to breach said contract by failing to pay plaintiff and cross defendant the amount due it under said contract if plaintiff and cross defendant continued to perform same by further deduction of the sum of $500 per day until the work under said contract was completed on about the 3rd day of January, 1937, or a total deduction of $112,000.00, from money justly due plaintiff and cross defendant under the terms of the contract, to plaintiff and cross defendant's great injury and damage, thereby justifying its rescission of the contract.

II.

That the undisputed evidence establishes that the defendant and cross complainant failed and refused to give to plaintiff and cross defendant any extension of time within which to complete the performance of the work under the contract, and that such

refusal was wrongful and illegal because plaintiff and cross defendant had been unavoidably delayed in the performance of the work under the contract for a period of 300 days, or more, and had also been delayed in the performance of the work under said contract by reason of stormy or inclement weather, and had been delayed by operation of law, and plaintiff and cross defendant was thereby justified in rescinding the contract.

III.

That the undisputed evidence in this case establishes a substantial breach by the defendant and cross complainant of the contract in that the materials through and under which the tunnels were to be constructed were substantially different from those shown, or predicted, or represented in the geological report furnished to bidders, in the plans and specifications furnished to bidders, and in the contract and the specifications forming a part thereof entered into; and made the performance of the work much more diffi- [2148] cult and expensive than it would have been had the materials corresponded with the materials predicted and represented by and in the geological report and the contract, plans and specifications; and thereby the warranty contained in the contract and relied upon by plaintiff and cross defendant in making same, as to the materials to be found through which the tunnels would be built, was breached to plaintiff and cross defendant's great injury and damage.

IV.

That the undisputed evidence in this case establishes constructive fraud on the part of the defendant and cross complainant in inducing plaintiff and cross defendant to enter into the contract.

V.

That the undisputed evidence in this case establishes capricious and arbitrary conduct by the District Engineer of the defendant and cross complainant in failing and refusing to determine and adjudge that plaintiff and cross defendant was unavoidably delayed in the doing and performance of the work.

VI.

That the undisputed evidence in this case establishes that a gross mistake was made by the Engineer of the defendant and cross complainant District in failing and refusing to determine and adjudge that plaintiff and cross defendant was unavoidably delayed in the doing and performance of the work.

VII.

That the undisputed evidence in this case establishes that the defendant and cross complainant breached the contract by failing and refusing to give plaintiff and cross defendant proper lines and grades to work to in the construction of the tunnels.

VIII.

That the undisputed evidence in this case establishes that a [2149] mutual mistake was made by the

plaintiff and cross defendant and defendant and cross complainant in entering into the contract in that plaintiff and cross defendant and defendant and cross complainant both believed that the ground through which the tunnels would be driven would be of self-supporting character for about 2,000 feet of the length of each of the tunnels; and both parties relied upon this fact in entering into said contract; and in truth and in fact the ground through which said tunnels were driven was entirely nonself-supporting, but required artificial support throughout before and during the lining of the tunnels with concrete to the extent that it was impossible to remove such artificial support, thereby causing plaintiff and cross defendant great injury and damage.

IX.

That the undisputed evidence in this case establishes that plaintiff and cross defendant relied upon the information contained in the various documents furnished to it by defendant and cross complainant prior to bidding, including particularly the geological report, plans, and specifications, and planned the doing of the work covered by the contract in reliance upon the information so furnished that the ground through which the tunnels would be driven would be found to be self-supporting for the most part; and by reason of the fact that none of said ground was self-supporting, plaintiff and cross defendant was unable to construct the tunnels in accordance with its plans made in reliance upon

the information furnished by the defendant and cross complainant, thereby causing great injury and damage to plaintiff and cross defendant.

X.

That the undisputed evidence shows that plaintiff and cross defendant did not abandon the contract but rescinded the same for material breaches thereof by defendant and cross complainant entitling plaintiff and cross defendant to rescind.

[2150]

XI.

The undisputed evidence shows that under the contract and particularly paragraph 5 thereof, defendant and cross complainant was required, in case of abandonment of the contract by plaintiff and cross defendant, to complete the work itself and that defendant and cross complainant did not do so, but caused the work to be completed by contracts which defendant and cross complainant entered into with other parties.

XII.

That the undisputed evidence shows that defendant and cross complainant is not entitled to recover any damages on account of any delay in the completion of the work.

XIII.

That the undisputed evidence shows that the cross complaint was prematurely filed and does not state a cause of action against plaintiff and cross defendant.

XIV.

That the undisputed evidence shows that the alleged expense to the defendant and cross complainant was not determined in the manner provided in the contract and specifications and the plaintiff and cross defendant was never notified by the defendant and cross complainant of the excess, if any, so claimed to be due.

XV.

That there is no evidence which would justify an award of damages in favor of defendant and cross complainant and against plaintiff and cross defendant.

XVI.

That the undisputed evidence shows that the defendant and cross complainant is not a citizen of a different State from all of the cross defendants and for this reason this Court has no jurisdiction of the cross complaint. [2151]

Plaintiff and cross defendant moves for such judgment on all of the grounds hereinbefore stated and further moves the Court for special findings of fact in accordance with the allegations of the answer of plaintiff and cross defendant to the cross complaint.

Plaintiff and cross defendant further moves the Court for conclusions of law that plaintiff and cross defendant is entitled to judgment in said cross complaint and that defendant and cross complainant take nothing by its said cross complaint.

Plaintiff and cross defendant requests special findings on each and all of the issues raised by said cross complaint and the answer of plaintiff and cross defendant thereto, which findings will hereafter be prepared and presented prior to the conclusion of the trial and will embody findings on each and all of the issues raised by the cross complaint and the answer of plaintiff and cross defendant thereto.)

Mr. Alexander: The cross defendant surety companies move for judgment in their favor upon the following grounds. First of all, we adopt all of the grounds urged by the plaintiff in the case. I think they have already indicated there will be special findings in the case. We repeat our request—I think it has already been made.

The following grounds are also made now, that the Court has no jurisdiction of the subject matter of the cross complaint or of the persons of the cross defendants, as two of the cross defendants were and are residents of the State of California and were such at the time of the commencement of this action, and were at the time the cross complaint was filed, and have been ever since, and that the lack of jurisdiction has not been cured by the dismissal of the two cross defendants.

Next, that it has not been proved that the plaintiff abandoned the contract or refused to continue to perform the contract. [2152]

The allegations of paragraph IX of the cross complaint regarding alleged items of damage have not been proved.

Likewise, with regard to paragraphs X and XIII and other paragraphs in which damages are claimed, the allegations regarding damages have not been proved.

That it has not been proved, as alleged in the cross complaint, that the plaintiff was in default in the completion of its work for a period of twenty days, or for any time.

Next, that the alleged ground of granting liquidated damages of $500 for each and every working day that may elapse between the limiting date provided in the contract and the date of the actual completion does not apply to the cross defendant surety companies, nor does it apply to plaintiff.

That in this case there is no justification for liquidated damages.

That the testimony adduced shows that the Court cannot indulge in any presumption of damage, that it has not been shown in what particular if any the cross complainant was damaged by the alleged delay, and there has been no evidence to show legal damage to the cross complainant.

There has been a material breach in the contract on behalf of the cross complainant in that it did not comply with the provisions of Article V of the contract between the plaintiff in this case and cross complainant. That there was a breach of such portion of the contract by said cross complainant in that upon the alleged abandonment of the work by the plaintiff the cross complainant had the work

completed by a number of contractors and did not proceed as in Article V of the contract provided, which among other things, required the completion of the work, not by such contracts, but directly by the cross complainant and by labor employed by it.

That it was provided in the contract between the plaintiff and [2153] cross complainant, in the latter portion of Article V of the contract, that in case the expense specified for completing the work is less than the sum that would have been payable under the contract, if the same had been completed by the plaintiff, the plaintiff would be entitled to receive the difference, and in case such expense shall exceed the last said amount, then the plaintiff or its bondsmen shall pay the amount of such excess to the cross complainant on notice from the cross complainant of the excess so due.

The cross defendant surety companies state that the alleged expense was not determined in the manner provided in the contract, nor was it audited in the manner provided in the specifications, and the cross defendants were never notified by the cross complainant of the excess or any sum due or claimed to be due; in that behalf that the conditions of the contract so specified were not performed by the cross complainant.

That the contract between the plaintiff and cross complainant was rescinded by the plaintiff for good and sufficient reasons upon the ground that plaintiff was entitled to extensions of time pur-

suant to the terms of the contract between plaintiff and cross complainant.

That at the time of the filing of the cross complaint the cross complainant did not have a cause of action against the cross complainant surety companies upon the bond, as at that time the expense of completion of the contract had not been determined as in Article V of the contract provided, nor did the cross complainant give notice to the cross defendant surety companies of the amount of such expense as provided in Article V of the contract, and Section 6(Q), subsections 1, 2 and 3 of the specifications.

That at the time the cross complaint was filed the expenses had not been calculated over the District Engineer's final estimate as provided in Section 6(Q), subsections 1, 2 and 3 of the specifica- [2154] tions and Article V of the contract.

The Court: We will take a recess now until two o'clock.

(A recess was here taken until two o'clock p. m.) [2155]

Afternoon Session

Mr. Alexander: Continuing, your Honor, with our motion for a judgment, the next ground is that the cross complainant violated the provisions of its contract with the plaintiff by completing the contract in a manner contrary to and in violation of the terms, conditions and provisions of the contract,

and thereby released the cross defendant surety companies from any and all liability to defendant and cross complainant. In furtherance of the same ground, that the contract was not completed in accordance with Article V of the contract.

Next ground, that in and by the plans and specifications and the geological report it was represented by cross complainant to plaintiff that the tunnels described therein could be driven through ground which was self-supporting in character, and which could be constructed with the use only of temporary timber supports for the excavation of said tunnels, which would be removed before the installation therein of the concrete lining or permanent structure provided to be built therein under the plans and specifications.

That said representations were untrue in that the entire length of the tunnels to be constructed was in ground which was not self-supporting, and which required permanent timbering or other support until and after the installation therein of the permanent concrete lining or structure thereof, and required all of the support placed therein prior to permanent lining to remain without removal from said tunnels. That by reason of said misrepresentations plaintiff rescinded the contract.

Next ground, that there was a mutual mistake between the plaintiff and cross complainant regarding the nature of the ground to be encountered, and for such reason plaintiff was relieved of any obli-

gation to further perform said contract, and was entitled to and did rescind said contract. [2156]

Next ground, that the contract between plaintiff and cross complainant provided that the District Engineer of cross complainant would give to plaintiff sufficient points and lines to enable plaintiff to construct the project in accordance with said contract. That said Engineer refused to establish said lines and said points, and thereby the contract was breached, and the plaintiff by reason thereof and for other reasons rescinded said contract.

Next ground, that during the performance of the contract plaintiff was unavoidably delayed from performance of said contract by stormy and inclement weather, by a general strike in the San Francisco and Bay region, by orders of the Industrial Accident Commission of the State of California stopping and suspending the work, by reason of the character of the ground encountered, which was totally different from that represented by the contract and geological report, by physical inability to construct the tunnel in the manner contemplated by the contract, by reason of the inadequate and unsafe design of the tunnel, by slides, by cave-ins, by failure of the cross complainant to perform its obligations under the contract, by delays caused by the Engineer of said cross complainant.

Next: That when plaintiff filed with cross complainant requests for extensions of time to which it was entitled they were refused arbitrarily, capriciously and fraudulently, although plaintiff was

entitled to extensions of time; and the Engineer of said cross complainant failed to consider whether plaintiff was entitled to extensions of time, and failed to exercise his judgment as to whether the work was unavoidably delayed, and arbitrarily, capriciously and without basis of any facts or knowledge of the cause of the delays, refused to approve such extensions of time; and said extensions of time were denied without reference to the opinion or judgment of said Engineer. [2157]

Next ground: That cross complainant withheld payments due to plaintiff of large sums of money which should have been paid to plaintiff according to the terms of the contract between plaintiff and cross complainant.

Next ground: That the cross defendant surety companies are not liable for the alleged liquidated damages for alleged delay in completion. Further, that the provisions for liquidated damages do not apply to the case of an abandonment of the contract by the contractor or to the case of rescission.

Next: That under date of June 16, 1936, said cross complainant stated that it would complete the contract in accordance with the provisions of the contract, but that it did not complete the work in accordance with the terms of said contract.

Next: That the cross complainant seeks to recover the reasonable cost of completing to which it is not entitled under the contract and its rights, if any, are governed by Article V of the contract. Furthermore, that the provisions of Article V of

the contract govern, and there is no basis for liquidated damages in a case of this kind.

Finally, by reason of the operation of law, the original contract was made impossible of completion.

On these grounds, we move for judgment for the cross defendants surety companies.

Mr. Wittschen: I take it that all those matters are submitted and need not be argued at this time. Obviously, the Court has passed upon many of them when your Honor ruled that plaintiff had no right to rescind the contract. The other matters that are peculiar to the cross complaint: as to those, your Honor has before you two conflicting motions. Obviously, one or the other cannot stand, either in whole or in part; one takes from the other; and we are [2158] prepared at this time, if your Honor so desires, to argue the points of law that are involved in the cross complaint.

Here follows the arguments of Mr. Wittschen for defendant and cross complainant, the argument of Mr. Marrin for plaintiff, and the argument of Mr. Alexander for the cross defendant surety companies, which arguments have been omitted by stipulation.

During the course of Mr. Alexander's argument the following statements were made by the Court and respective counsel. [2158]

Why? Well, the bond interest, we know they have not sustained any loss on that. The use of the

Tunnel Road. They lost nothing there. The Tunnel Road is still open. They did not pay any rental for it. There was no additional cost to keep it open. Engineering charges. Your Honor will remember from their own testimony the engineering charges were going on before the so-called abandonment, long before. We had evidence that they had Mr. Boggs all the time, they had Mr. Gelston, his assistant engineer, they had Mr. Lippincott long before the so-called abandonment; they had Derleth and they had Van Norman. In other words, things that they have thrown in after the so-called abandonment were items of expense that they had before by their own testimony. All of these gentlemen testified they were serving the district long before June of 1936.

Mr. Tinning: Mr. Alexander, I think for the sake of the record I ought to call to your attention that those exhibits which are placed in evidence do not include any of the expense for the consultants arising out of the difficulties. They are the regular engineering operating cost of the District.

Mr. Alexander: Your Honor, we know they have put those things [2258] in. We know they have also passed up to your Honor sheets containing claims for items of legal expense.

Mr. Wittschen: We are just telling you we have not.

Mr. Alexander: If you will look at Exhibit 114-X you will see you have put in evidence here items including legal expense.

Mr. Tinning: Mr. Alexander, pardon me for interrupting you, I have stated as a fact that all legal expense subsequent to the controversy between the parties was eliminated from that.

The Court: Does this copy go to the home office?

Mr. Alexander: No; you can pan me all you want.

The Court: Proceed.

Mr. Alexander: I say they have put in, they have dished up in this Court things that certainly you can take cognizance of. Why mention legal expense at all?

The Court: If counsel indicates that there is an item of legal expense there and he says that is in good faith, do you question it?

Mr. Alexander: I do not question his good faith, and I do not think he should question mine.

The Court: Where is that $114,000? Let us dispose of it.

Mr. Tinning: Prior to the time of this difficulty I had been attorney for the District and I was paid a certain amount per month, and when this trouble started that payment was doubled, I think on the 15th of June, 1936. There is not one dollar in this statement that has been put in as $114,000, that was not a standard expense of the District before the rescission. In other words, the total is not put in, nor has Mr. Wittschen's employment been put in, it was all eliminated. If counsel now, when they did not ask a single question on cross examination except something about expenses, mean to indicate that we have put in here improper matters, or mat-

[2159] ters that were in variance with our statement with respect to the experts, etc., which ran into a great deal of money and which has been eliminated, I think he did not understand what this statement was.

Mr. Wittschen: If there is any doubt about it we would like to put Mr. Boggs on the stand and let them cross examine him. Otherwise we want our statement accepted as a fact, that none of the costs of this litigation are reflected in Exhibit X-114. It is just the ordinary cost of continuing the District, the running expense of the District's operations. The cost of the engineers and other items of expense would have dropped the moment the job was finished, because the Counties took over the work.

The Court: If there is any question about it, that it is an incorrect statement, if you wish to call him in the matter—

Mr. Smith: I think I can clarify the matter. Wasn't the exhibit offered solely for the purpose of showing that you had an item of expense and not to prove the figures?

Mr. Wittschen: I wanted to straighten that out as soon as I had an opportunity to talk. I was going to then, but I would like to do it now, because Mr. Boggs is here. That item of $278 a day, the cost of keeping the District, is put in for a two-fold purpose. It was put in first to show that there was that actual expenditure as a fact, and if there is anything in the record to the contrary it

is now withdrawn, because the intent was to put that in as a fact. The other item that we intended to put in as a fact was that there was $89,000 of bond interest during this time of delay. Those two things were facts, and when added together they total $500, and they were put in both as factual matters and also to show that the claim for liquidated damages was not unreasonable. The $419 a day which would be the cost of people using the road because [2260] they had to travel two miles more was simply put in to show the difficulty in ascertaining actual damages; but the other two items, the cost per day of the District and the bond interest, were two elements of fact, and Mr. Marrin in his brief has regarded them as facts and has stated them as facts.

Mr. Marrin: Oh, no, just the reverse. I understood they were offered distinctly for the purpose of showing that the amount of damages was difficult to fix, that they were not offered as facts and as a part of the actual damage.

Mr. Wittschen: You have some basis for that because it was stated in the paragraph along with the other items but now that this case is not closed and the controversy has arisen—we do not need to recall the witness—I state to you now we want them considered over your objection as proof of a fact, and if you want to cross examine on them you may.

Mr. Smith: At the time the evidence went in I happened to be conducting the questioning for the

Six Companies, the plaintiff, and I objected to the testimony and your Honor admitted it subject to a motion to strike.

Mr. Wittschen: That is right.

Mr. Smith: On the same subject, there were three matters involved. There was this exhibit regarding the cost and maintenance of the District, which you called Cost maintenance of the District, I understood. Mr. Tinning was putting in the evidence. There was the Exhibit offered for the purpose of showing the amount of alleged bond interest, which they were paying every day, and then there was miscellaneous testimony, not in exhibit form, of the so-called traffic per day, and capitalized into an imaginary figure up into the stratosphere somewhere, and I objected to all of those three items on the ground they were immaterial, and Mr. Wittschen [2261] said in so many words for the record that they were being offered for the sole purpose of showing the difficulty of showing liquidated damages.

The Court: He so stated now.

Mr. Smith: Yes.

Mr. Wittschen: No, I said that that speculative feature, the cost to the general public, was solely to show the difficulty of ascertaining the liquidated damages. I ask your Honor to consider, and if there is any misunderstanding now is the time to straighten it out, that the proof of $272.89 a day is not only for that purpose but it is actual proof

of the loss that the District incurred, because the District, in taking care of this work, had to exist a certain time longer than it would have existed and that all that expenditure related to this work and was not just the work of maintaining the District, because the District had nothing else to do, and I want that showing considered, and if they would like to cross examine further, because they misunderstood it, or even if we did say it before, we now correct it, it was a misunderstanding, and we are willing that Mr. Boggs come back. I also want considered as a fact the interest matter, because whether you agree it is an element of damage or not, it is a proven fact that the bonds carried so much interest, and there were so many bonds, and I would like both of those considered as facts.

Mr. Smith: You bound yourself by your own offer. The Court asked you to state the purpose of the testimony, and it admitted it on the basis of your statement of its purpose, and the record is clear on that.

The Court: Just a moment. It is important to both sides in the final determination of this case. If there is any question about the state of the record we will meet that emergency. If you [2262] cannot stipulate to the facts, whatever the facts may be, you will have to call the witness and he may be cross examined. There is no use of trying to apply the law to a state of facts that are questionable at all.

Mr. Wittschen: May we recall Mr. Boggs and re-offer that testimony, not only for the purpose of

proving the difficulty of ascertaining the damage, or, as I put it, to show the reasonableness of the liquidated damages claim, but also as an independent proof of fact, and then if they want to cross examine him they may; if they do not avail themselves of that privilege I take it that our offer stands and the evidence that is in stands. Mr. Boggs——

Mr. Smith: Just a minute. That stipulation would mean nothing in this case. It was stipulated the evidence was closed at the close of the testimony the other day. Mr. Wittschen so stated for the record twice in answer to my question.

Mr. Wittschen: I have a right to withdraw it with the Court's permission.

Mr. Smith: And if it is withdrawn we will assign it as prejudicial error.

Mr. Marrin: Certainly this offer is not within any of the issues of this case. In their cross complaint they allege the $500 a day and ask for judgment for that amount. They said that it was offered as a justification for $500 a day. They are bringing it in now on an entirely new matter.

The Court: I can see that the atmosphere is getting thick again. We have gotten along so nicely in this case that I thought we could go along that way. After all I can understand how you could enter into a stipulation in good faith with the hope of saving some time. I do not want to penalize either side in that respect, because it is helpful to the Court. I am concerned about [2263] getting the facts in this case. If there is any question about

it at all, we will adjourn until tomorrow morning at ten o'clock, at which time we will proceed to take testimony in the event you cannot agree, yourselves, on a statement of facts, or whatever it may be.

(An adjournment was here taken until tomorrow, Wednesday, June 8, 1938, at ten o'clock a. m.)

[2264]

Wednesday, June 8, 1938

Mr. Tinning: Your Honor please, since the adjournment last night we have given consideration to the matters that were discussed yesterday and we desire at this time to ask leave to reopen the evidence in this case solely with respect to Exhibit 114-X and the matters therein set forth, particularly with respect to the question of whether there is any charge included in the summarization of the District expenses in this exhibit which includes the cost or expenses of the litigation brought about by the Six Companies' attempted rescission on the 13th of June, 1936. Those charges, we felt, were proper charges against Six Companies for the maintenance of the work, and the additional costs are all in in other exhibits, and this offer was brought about by Mr. Alexander's argument that the exhibit showed, or might be construed to show that it included some of the expense of this litigation.

The Court: I think it would be well to have the matter clear so the arguments may proceed.

Mr. Smith: What is the offer now, Mr. Tinning? I did not quite understand your language.

Mr. Tinning: Simply with respect to the fact that this exhibit, 114-X, only covers items of the ordinary expense of the district and not legal expenses, or any other expenses arising from the litigation, or difficulties that commenced with Six Companies on the 13th of June, 1936.

Mr. Smith: I understood that that was the fact originally.

Mr. Marrin: We don't contend it was, Mr. Tinning.

Mr. Alexander: You misunderstood me.

Mr. Wittschen: Well, you brought in Lippincott's expenses and the others.

The Court: Let him take the stand and clear it up. [2265]

Mr. Smith: Just a minute, your Honor. You don't need to put on any evidence as to that, we will stipulate as to that.

Mr. Marrin: You will stipulate to that, won't you, Mr. Alexander?

Mr. Alexander: Yes. I never questioned it, your Honor. You misunderstood me entirely, gentlemen.

The Court: Well, I followed the statements and the record will disclose the language that was used. I may be in error, but there was an inference here that there were attorneys' fees that they were not re-

sponsible for, and the inference would be that they helped themselves, or tried to, by padding up this Exhibit 114.

Mr. Alexander: Oh, your Honor, I am sorry you had that idea. I did not mean to convey that idea at all. I looked over the record and I believe it will bear out my thought.

The Court: I looked over the record, and I think it ought to be cleared up so there is no question about it, at all.

Mr. Smith: Well, we stipulated to the offer made.

Mr. Marrin: The only question that was brought up was that Mr. Alexander mentioned that there were certain legal fees in there, and I think you concede that is so, but you explained that it was only for the legal fees of running the District.

Mr. Tinning: The same fees that were paid continuously from the time the contract work started, sometime in the spring of 1934.

Mr. Marrin: Surely. That was the only reference Mr. Alexander made to legal fees. I understand that. We are perfectly willing to stipulate that that exhibit does not contain any of those legal expenses or other expenses for the conduct of this litigation, and I understand that that is what you want cleared up.

Mr. Tinning: Yes.

The Court: There are no additional attorneys' fees other than—— [2266]

Mr. Marrin: Other than the ordinary running expenses.

The Court: That were being paid out while Six Companies was on the job.

Mr. Tinning: Gentlemen, this is the situation, to be sure what we are stipulating to: The first page of the exhibit, in the column "Office and legal services," for example, the month of July is a typical month, the first full month where this matter appears, because there was a change in the legal compensation paid me as attorney for the District; that was enacted by resolution of the Board of Directors, as a matter of fact, on the 15th of June, 1936, after the rescission notice was served. This item of $1,178, which is accounted for here, includes the attorney fees, or salary, it would be better to call it a salary, because it was a fixed sum; the salary of the comptroller of the district; the salary of the two stenographers of the district who had been employed by the District continuously for two or three years precedent, and includes the salary of Mrs. Veale, who has charge of the records and accounts, and who has been continuously employed for several years. Those are the only items, and, of course, this was offered under a general understanding we would offer a summary instead of bringing in the original books, and if it will be stipulated along those lines I have indicated there is no reason for putting on that testimony, but I certainly understood from the argument that was made, although I have not seen the record, that

Mr. Alexander was at least intimating that this contained expenses of attorneys' compensation with respect to this litigation, and I understood him with respect to the consultants. Those would not appear, as I stated in the offer of the other matters, to have any place in this case. In fact, it was necessary for us to rewrite this whole thing, because our auditor, in making up the exhibit, included those matters in the [2267] rest of the expenses of the District, and over the Memorial Day holiday we had to get this whole thing worked out again, because it was a mistake.

If it be understood that is the fact I don't desire to offer evidence, but I don't want to be met in some other court or somewhere else by intimations that this exhibit is anything but what we offered it for, and we offer it sincerely on that basis, and in view of the general understanding outside of the court-room we would not produce the original books, because we all desired saving incumbering the record.

Mr. Smith: That is satisfactory.

Mr. Marrin: Yes, that is our understanding. The understanding is, Mr. Tinning, that this Exhibit 114-X—

The Court: Pardon me. So there is no commitment on your part, or anything, there are only half a dozen items in that, let him take the stand and limit it to those items, so then you will be free——

Mr. Smith: Well, your Honor, the evidence in the case has been closed.

The Court: However, it is immaterial to me.

Mr. Smith: The stipulation is the equivalent of evidence.

The Court: I understand that, but on account of your stipulation, and you don't want to make commitments, that is all I wished.

Mr. Marrin: We are perfectly willing to stipulate that the exhibit X-114 does not contain any of the additional expenses of the District in connection with this litigation. I understand that is the only purpose of it.

Mr. Wittschen: Only in connection with completing the tunnel, the maintenance of the District during that period.

Mr. Marrin: The ordinary running expenses of the District. [2268]

Mr. Wittschen: Yes.

Mr. Marrin: We would not stipulate it was incurred in connection with completing the tunnel.

Mr. Tinning: It was on the ordinary running expenses.

Mr. Smith: Yes, we so understand. We understand it.

Mr. Tinning: That is also your understanding, Mr. Alexander?

Mr. Alexander: It was always my understanding. I never have suggested, or meant to suggest, that the legal expense includes an expense for this case, and it should be so understood. You misunderstood me.

Mr. Tinning: Is it stipulated now that these items set up in Exhibit 114 are for salary and for the items of expense of operating the District, and do not contain any items with respect to this litigation, either for attorneys' fees or consultants?

Mr. Smith: Your last statement is a satisfactory stipulation for that.

Mr. Alexander: We accept it, also.

Mr. Smith: Very well.

The Court: Now that the difficulty is over, you may proceed, gentlemen.

Mr. Alexander: Will your Honor give me just a moment to make a note of that stipulation?

The remainder of Mr. Alexander's argument and Mr. Wittschen's argument in reply have been omitted by stipulation.

At the conclusion of Mr. Wittschen's argument (which has been omitted by stipulation) the following took place: [2269]

The Court: What is the amount of your judgment you are seeking?

Mr. Wittschen: $383,000. I can give it to your Honor accurately.

The Court: There is some confusion as to that $278 a day.

Mr. Wittschen: That $278 a day should not be confused, your Honor. That was given for the purpose of showing that the cost of running the District was that much, but obviously if we get the penalty of $500 a day liquidated damages we could

not get that. I might say that the interest on the investment and that cost together exceeds $500 a day. I am merely arguing as to those matters to show that the penalty of $500 a day is reasonable, but if your [2309] Honor gives us the penalty those matters cannot be considered. We cannot have both. We are limited by the penalty of $500 a day.

The Court: What is the definite figure?

Mr. Wittschen: I will give it to your Honor, it is $383,568.16. If your Honor would like me to give the items, they are, the extra cost of completing the work is $108,066.31.

The Court: That is cost for completion?

Mr. Wittschen: That is cost for completion over and above all credits, what we actually paid to other contractors. Then the protecting of the work and the insurance, and re-advertising is $69,001.85. Then we have for delay 413 days at $500 a day, $206,500, and the three together added up amount to $383,568.16. Those are all pleaded in the cross complaint.

Mr. Smith: We would like to renew the motion to strike that we made upon which your Honor has not ruled.

The Court: Have you a memorandum of it?

Mr. Smith: It is in the record. The motion was read into the record and appears at page 1707. I can repeat it, it will only take a minute.

The Court: Very well.

Mr. Smith: "Plaintiff and cross defendant moves to strike from the record in the case the evi-

dence given and offered through the witness Wallace B. Boggs concerning

"(a) Cost of employing engineers, office force, watchmen, and procuring materials and supplies for operation of the District after June 13, 1936;

"(b) Cost or expense to the District for interest on its outstanding bond issue during any period after June 13, 1936;

"(c) Amount of traffic over the so-called Tunnel Road, or evidence concerning alleged damage to public from non-completion of the project of the District on or before May 24, 1936. [2310]

"The evidence so objected to commences at approximately line 7 on page 1671 of the transcript, beginning with the question: 'During the period following the 24th day of May, 1936, did the District continue to employ engineers, etc.?' and continues down to and including the question: 'Under the direction and control of what department—was it the Department of Public Works of the State of California?' on page 1682 of the transcript; and this motion is directed to all thereof beginning at the page and place noted and ending at the page and place noted.

"Also, to supplement what I have written out, the motion is likewise directed to the testimony adduced here this morning along the same lines, concerning the same subjects which

I have mentioned, and, of course, I am not able to give a page number of the record because we have not yet been furnished with the typewritten record; but this motion is directed to the evidence which I specifically pointed out, as well as to what has been received this morning through the witness Boggs on the same subjects.

"The evidence objected to and admitted subject to motion of plaintiff and cross defendant to strike same is now moved to be stricken out upon the grounds that same is not proof in any manner of damage caused to cross-complainant by cross defendant; also that the elements of damage sought to be established thereby are too remote and too speculative and not within the purview or rules of damages covering this subject; further, that, had it not been for the breach of the contract by the cross complainant in improperly deducting penalties against the cross defendant, all of the work would have been completed not later than January 3, 1937, which would have been the latest possible date when it would have been necessary for any of the elements covered by this evidence to have continued further, that no matter whether cross complainant was engaged in [2311] constructing its project or not it was liable for payments of its bond interest; that no revenue was derived by cross complainant from the tunnels or project, and therefore no

damage could have possibly been sustained by any delay in completion of same by Joint Highway District or by the public; that the evidence concerning the use of the highways by the public is purely speculative and guesswork, and has nothing to do with any issues involved in this case; further, for the reasons stated by me, the evidence is incompetent, irrelevant and immaterial, and should be stricken from this case."

We renew that motion.

Mr. Alexander: We join, your Honor, in the renewal of the motion to strike out on the same grounds.

Mr. Wittschen: The evidence as to the loss of the use of it by the public was not put in to get a money judgment for the same. It was simply to show the inconvenience of the public and as showing the impossibility of the claim at the time the contract was entered into of proving actual damages, and to sustain liquidated damages. The other matter, as to bond interest, that is a definite sum. That is purely a matter of mathematics. It is there for what it is worth. There is nothing vague or indefinite about that, it is a certain sum.

Mr. Smith: We will submit the matter.

Mr. Wittschen: We will submit it.

The Court: The case stands submitted on both sides. [2312]

[Endorsed]: No. 9113. United States Circuit Court of Appeals for the Ninth Circuit. Six Companies of California, a corporation, and Hartford Accident and Indemnity Company, a corporation, Fidelity and Deposit Company of Maryland, a corporation, The Aetna Casualty and Surety Company, a corporation, Indemnity Insurance Company of North America, a corporation, American Surety Company of New York, a corporation, Maryland Casualty Company, a corporation, United States Fidelity and Guaranty Company, a corporation, The Fidelity and Casualty Company of New York, a corporation, Glenn Falls Indemnity Company, a corporation, Standard Surety and Casualty Company of New York, a corporation, Standard Accident Insurance Company, a corporation, Massachusetts Bonding and Insurance Company, a corporation, Continental Casualty Company, a corporation, and New Amsterdam Casualty Company, a corporation, Appellants, vs. Joint Highway District No. 13 of the State of California, a public corporation, Appellee. Transcript of Record upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

Filed February 21, 1939.

PAUL P. O'BRIEN,

Clerk of the United States Circuit Court of Appeals for the Ninth Circuit.

CLERK'S COPY.

Vol. VIII

TRANSCRIPT OF RECORD

BOOK OF EXHIBITS

Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

SIX COMPANIES OF CALIFORNIA, HARTFORD ACCIDENT AND INDEMNITY COMPANY, ET AL., PETITIONERS,

vs.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR CERTIORARI FILED JULY 22, 1940.

CERTIORARI GRANTED OCTOBER 14, 1940.

NO. 9113

United States

Circuit Court of Appeals

For the Ninth Circuit.

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

Transcript of Record

In Eight Volumes

VOLUME VIII

Book of Exhibits

Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

PARKER PRINTING COMPANY, 545 SANSOME STREET, SAN FRANCISCO

[CLERK'S NOTE: Excerpt from stipulation of counsel re portions of record to be printed:

"(1) It is stipulated that an agreed statement of facts in the form hereto attached and marked Exhibit 'A' shall be printed in the record in lieu of plaintiff's exhibits numbers 1, 5, 6, 8, 9, 11, 12, 13, 14, 15, 17, 19, 20 and 21."]

EXHIBIT "A"

AGREED STATEMENT OF FACTS

Defendant, by resolution of its Board of Directors, adopted on March 3, 1933, duly and regularly approved the final surveys, plans and specifications and detailed drawings and final estimate of cost of the project which it proposed to construct. Said specifications, plans and drawings so approved were the same as plaintiff's Exhibits Nos. 3 and 2, respectively, introduced in evidence herein. Said estimate of cost was the same as plaintiff's Exhibit No. 4.

Thereafter, by resolution of its Board of Directors, adopted January 9, 1934, defendant duly and regularly approved the first amendment to said specifications, plaintiff's Exhibit No. 7 herein, and thereafter, by resolution of its Board of Directors, adopted April 3, 1934, defendant duly and regularly approved the second amendment to said specifications, plaintiff's Exhibit No. 10 herein.

All of said specifications and amendments thereto and said plans, surveys, detailed drawings and esti-

mate of cost were duly and regularly approved by the Director of the Department of Public Works of the State of California.

On May 4, 1934, the Board of Directors of defendant adopted a resolution to proceed with the construction of the project of defendant and directing that a notice to contractors be published that sealed bids for the construction of defendant's project would be received until May 22, 1934.

Thereafter, said notice was duly and regularly published.

On May 22, 1934, plaintiff submitted to defendant a bid for constructing said project of defendant. Said bid was in the amounts set forth in the contract thereafter entered into between plaintiff and defendant, plaintiff's Exhibit No. 16 herein, and was the lowest and best bid submitted.

On May 29, 1934, the Board of Directors of defendant adopted a resolution accepting said bid of plaintiff and awarding to it a contract for the construction of said project of defendant and authorizing the execution of said contract.

Said contract was thereafter duly and regularly executed by the parties thereto.

Thereafter, a bond for faithful performance of the contract and a bond for the payment of materialmen and laborers were duly and regularly filed by plaintiff with defendant. Both bonds were dated June 12, 1934, and both were duly and regularly approved by a resolution of the Board of Directors of defendant, adopted June 14, 1934.

Attached to the cross-complaint herein is a full, true and correct copy of said bond for faithful performance, which is plaintiff's Exhibit No. 18.

Defendant is, and at all times which are material to this case, has been, a duly and regularly organized and existing public corporation under the law of the State of California. Prior to entering into said contract with plaintiff, defendant duly and regularly complied with all the requirements of the laws of the State of California relating to its organization, the construction of its project and the awarding of said contract to plaintiff for the construction thereof.

PLAINTIFF'S EXHIBIT No. 3

Specification No. One
Set No. 99

JOINT HIGHWAY DISTRICT No. 13
OF THE STATE OF CALIFORNIA

office of

Wallace B. Boggs, District Engineer,
1448 Webster Street
Oakland, California

Dated March 30, 1933

SPECIFICATIONS

For the Construction of a Highway Tunnel and Roadway Approaches from Broadway and Keith Avenue in Oakland to a Point on the State Highway in Contra Costa County, Approximately Fourteen Hundred Feet (1,400') Northerly from the Fish Ranch Road; Being Partly in the City of Oakland, County of Alameda, and Partly in the County of Contra Costa, and All in Joint Highway District No. 13 of the State of California.

SECTION 1. WORK TO BE DONE

The work to be done shall consist of the construction of a highway tunnel with ventilation buildings, ventilation equipment and accessories; the construction of roadway approaches with pavements, drainage structures, curbs, gutters and sidewalks where required; the construction of grade separation

structures, viaducts, retaining walls and incidental structures; connections with existing streets, highways and structures, the furnishing of all labor, material, tools and equipment and the performance of all work necessary or incidental to the construction detailed, specified and intended, and that may be necessary to perform the complete construction as shown on the plans accompanying these specifications and made a part hereof, or as specified herein, being partly in the City of Oakland, County of Alameda, and partly in Contra Costa County, State of California, and all in Joint Highway District No. 13 of the State of California.

SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS

(a) Proposal Forms.—Prospective bidders will, upon request to the District Engineer, 1448 Webster Street, Oakland, California, be furnished with Proposal Forms which will state the location and description of the contemplated construction and contain a schedule of items for which bid prices are asked, all proposals and bids to be submitted on the forms supplied by the District.

(b) Estimates of Quantities.—Where estimates of quantities are given on the Proposal Form, or in "Notice to Contractors," or in any Contract executed hereunder, it is hereby declared and shall be understood that such quantities are approximate only, being given as a basis for comparison of bids. The District does not expressly or by implication agree or

guarantee that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, or to omit portions of the work as may be deemed necessary or expedient by the District Engineer.

(c) Examination of Plans, Specifications and Site of Work.—The bidder is required to examine carefully the site of the work, the Proposal Form, and plans, specifications and contract forms for the work contemplated. The submission of a Proposal shall be considered prima facie evidence that the bidder has made such an examination and is satisfied as to the conditions to be encountered, as to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of the specifications, plans and contract, or contracts.

* * * * * * * *

(i) Competency of Bidders.—Any bidder, if required by the Board of Directors, shall furnish a statement as to his ability to perform the work contemplated, and the Board of Directors reserves the right to reject the proposal of any bidder who, in their opinion, fails to show that he has the necessary capital, financial standing, organization, facilities, experience and ability to begin the work promptly and perform and complete the work to be done under the contract in a satisfactory manner.

SECTION 3. AWARD AND EXECUTION OF CONTRACT

(a) Acceptance or Rejection of Proposals.—The Board of Directors reserves the right to reject any and all proposals.

(b) Award of Contract.—The award of the contract, if one be awarded, will be to the responsible bidder whose proposal is the lowest regular acceptable bid and complies with all the requirements prescribed by law and these specifications.

(c) Bonds.—The Contractor to whom an award is made shall, in addition to the execution of the contract in a form approved by the attorney for the District, within twenty (20) days after the date of the award of such contract by the Board of Directors, execute and deliver to the District bonds for the faithful performance of the contract and for the payment of all claims for labor and material thereunder in the manner provided by law and in the form approved by the attorney for the District. Said bonds shall be executed by the bidder with a corporate surety or sureties duly authorized to do business as such under the law of the State of California and each in amounts which shall be not less than fifty per cent (50%) of the aggregate contract price.

(d) Execution of Contract.—Contracts shall be executed in a form approved by the attorney of the District and delivered to the District within twenty (20) days after the date of the award of such contract by the Board of Directors. No proposal shall

be considered binding upon the District until the execution of the contract and bonds as hereinbefore provided.

(e) Failure to Execute Contract.—Any bidder who fails to execute a contract and file acceptable bonds as provided herein within twenty (20) days after the date of the award of such contract by the Board of Directors shall be subject to having his bid annulled, and his certified bid check forfeited to the District as liquidated damages. In such event, awards may then be made to the next lowest responsible and acceptable bidder, or the District may call for new bids, as the Board of Directors thereof may determine.

SECTION 4. TIME

(a) Commencement of Work.—The Contractor shall commence work within ten (10) days after the execution of the contract for the work by the Board of Directors and shall continue without interruption unless otherwise directed by the District. At least three (3) days before starting, the Contractor shall notify the District Engineer in writing of the date that work is to commence.

(b) Completion of Work.—The time of completion of the entire work specified herein shall be within a period of seven hundred and twenty (720) calendar days from the date of the execution of the contract by the Board of Directors.

(c) Extension of Time.—The time during which the Contractor is delayed in said work by Acts of

God, or by stormy or inclement weather, or by any reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion, provided that the Board of Directors approve in advance the written application therefor, which must be made by the Contractor for such an extension, before the expiration of the time limit fixed herein, or a duly granted extension thereof.

(d) Damages for Delay.—The parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the contract or within such extensions of the contract time as may be allowed as herein provided, it is distinctly understood and agreed that the Contractor shall pay the District as agreed and liquidated damages and not as a penalty five hundred dollars ($500.00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work, said sum being specifically agreed upon as a measure of damage to the District by reason of delay in the completion of the work; it being expressly stipulated and agreed that it would be impracticable to estimate and ascertain the actual damages sustained by the District under such circumstances; and the Contractor agrees and consents that the amount of such liquidated damages so fixed, shall be deducted and retained by the District from any money then due, or thereafter to become due, the Contractor.

[Clerk's Note: As amended by Plaintiff's Exhibit No. 10]

SECOND AMENDMENT AND SUPPLEMENT TO FINAL SPECIFICATIONS FOR CONSTRUCTION OF PROJECT

SECTION 5. PAYMENTS

(a) Partial Payments.—Payments will be made only upon the certificate of the District Engineer for work actually performed. The District Engineer shall measure the work on or about the first day of each month and at the time of completion of the entire work, and shall render a certificate on or about the tenth day of each month and at the completion of the entire work, stating the amount of work performed during the previous calendar month and during the current month at the time of completion. The Contractor shall then, at the times above specified, be entitled to receive a payment from the District in an amount to be determined as follows: Until the total value of the work done since commencement of performance of the contract exceeds Four Hundred Thousand Dollars ($400,000.00) the payment will be seventy-five per cent (75%) of the amount specified in the District Engineer's certificate; thereafter and until the total value of the work done since the commencement of performance of the contract equals One Million Dollars ($1,000,000.00), the constant sum of One Hundred Thousand Dollars ($100,000.00) will be retained by the District out

of said total value; thereafter the progress payment will be ninety per cent (90%) of the amount specified in the Engineer's certificate, provided that no such estimate of payment shall be required to be made when, in the judgment of the District Engineer, the work is not proceeding in accordance with the provisions of the contract, or when, in his judgment, the total value of the work done since the last estimate amounts to less than Five Hundred Dollars ($500.00), except the certificate and payment required at the completion of the entire work.

The acceptance by the Contractor of the final ninety per cent (90%) payment for the completed work shall be and shall operate as a release to the District from all claims and liability to the Contractor for anything done or furnished for or relating to the work, or for any act or neglect of the District or its agent in any way affecting the work, excepting the claim of the Contractor against the District for the moneys herein provided to be paid by the District to the Contractor thirty-five (35) days after the acceptance of the contract.

(b) Final Payments.—Thirty-five (35) days after the acceptance of the work by a certificate of acceptance duly rendered by the District Engineer and final approval and acceptance by the Board of Directors of the District, the Contractor shall be entitled to receive a payment of the balance due under this contract in the amount of ten per cent (10%) of the aggregate amount of all certificates of the District Engineer.

SECTION 6. GENERAL PROVISIONS

(a) Definitions.—Whenever in these specifications, or in any documents or instruments in construction where these specifications govern, the following words or terms, or pronouns in place of them are used, they shall have the respective meaning and intent here given:

(1) District.—Refers to and indicates Joint Highway District No. 13 of the State of California.

(2) Board of Directors or Board.—Refers to and indicates the Board of Directors of Joint Highway District No. 13 of the State of California.

(3) District Engineer or Engineer.—Refers to and indicates the District Engineer of Joint Highway District No. 13 of the State of California, appointed by the Board of Directors of said District and acting either directly or through properly authorized agents. Such agents acting within the scope of the particular duties entrusted to them.

(4) Contractor.—Refers to and indicates the person or persons, copartnership or corporation, or association who have entered into a contract with Joint Highway District No. 13 of the State of California to perform the work to be done in accordance with these specifications, or their legal representatives.

(5) Bidder.—Refers to and indicates the person or persons, copartnership or corporation, or association submitting a proposal for the work contemplated, acting directly or through duly authorized representatives.

(6) Surety or Bondsmen.—Refers to and indicates the corporate body which is bound with and for the Contractor for the faithful performance of the contract and for the completion of the work, and for the payment of all claims for labor or materials thereunder, in the manner provided by law.

(7) Specifications.—Refers to, indicates and includes all specifications, provisions, directions and requirements of every kind, whether general, detailed or otherwise, relating to the equipment, materials, or work and the installation thereof; and the plans and drawings, or exact reproductions thereof accompanying and supplementing the same, which are made a part thereof.

(8) Plans.—Refers to, indicates, and includes the official plans, profiles, general and typical cross-sections and details, or the exact reproductions thereof, approved by the District Engineer, which show the location, character, dimensions and details of the work to be done and which

accompany and are supplementary to the specifications and are made a part thereof.

(9) Contract.—Refers to, indicates and includes the written agreement entered into by the Contractor and the District, covering the performance of the work and the furnishing of labor, materials and equipment in the construction of the work. The Contract shall include the Notice to Contractors, the proposal, plans, specifications and contract bonds.

(10) Contract Bond or Bonds.—Refers to, indicates and includes the approved form of security furnished by the Contractor and his surety as a guaranty that he or they will complete the work in accordance with the terms of the contract, and to secure the payment of claims for materials provisions, provender or other supplies or equipment, used in, upon, for or about the performance of the work, or for any work or labor thereon.

(11) The Work.—Refers to, indicates, and includes all the work specified or indicated by the plans and specifications for the contemplated improvement covered by the contract.

(12) As Directed, etc.—Whenever the words "as directed," "as required," " as permitted," or words of like effect or intent are used, it shall be understood that the

direction, requirement or permission of the District Engineer is intended. The words "sufficient," "necessary" or "proper" or words of like import, shall mean sufficient, necessary or proper in the judgment of the District Engineer. The words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, acceptable to, or satisfactory to the District Engineer.

(b) Authority of District Engineer.—The District Engineer shall decide any and all questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work, and shall decide all questions which may arise as to the interpretation of the plans and specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Contractor and as to compensation. His decisions shall be final and he shall have executive authority to enforce and make effective such decisions and orders as the Contractor fails promptly to carry out.

(c) Compliance with Specifications.—It shall be the duty of the Contractor to see that the provisions of these specifications are complied with in detail, irrespective of the inspection of the work during its progress by the District Engineer or his representatives.

(d) Inspection.—The Contractor shall afford every facility necessary for the safe and convenient

inspection of the work throughout its construction and for inspection of materials used or to be used. The District Engineer shall have power to reject material and workmanship which are not in accordance with specifications, and all such must be removed promptly by the Contractor and replaced to the satisfaction of the District Engineer without extra expense to the District.

All inspection of materials shall be made after delivery at the site, unless the District Engineer shall direct otherwise. Material rejected at the place of manufacture or elsewhere shall not be delivered on the site of the work, and material rejected at the site of the work shall be removed from the site as soon as possible and not returned thereto.

The failure of the District Engineer or his representatives to discover and condemn work not in accordance with the specifications shall not relieve the Contractor of his obligation to the District to furnish proper materials and work as provided in these specifications; nor shall it relieve the Contractor from being compelled to remove and replace promptly any work found to be defective at any time during the construction of the work, or before the final acceptance of the work.

(e) Disputes.—To prevent disputes and litigation the District Engineer shall in all cases determine the amount, quality and acceptability of the work and materials which are to be paid for under these specifications. He shall determine all questions

in relation to said work and materials and performance thereof and all questions which may arise relative to the fulfillment or interpretation of these specifications on the part of the Contractor. His estimate and decision shall be final and conclusive, and in case any question shall arise between the Contractor and the District pertaining to the contract, the District Engineer's estimate and decision shall be a condition precedent to the right of the Contractor to receive any moneys under the contract.

(f) Contractor to Be On Work.—The Contractor shall be constantly on the work during its progress, either in person or represented by duly authorized representatives, who are competent to receive and carry out any instructions that may be given by the proper authorities, and said Contractor will be held liable for the faithful observance of any instructions which may be delivered to him or to his representatives on the work. The District Engineer shall be notified by the Contractor in writing as to the personnel of authorized representatives and all changes pertaining thereto.

The Contractor shall maintain an office on the site of the work and install and maintain a telephone connected with local and long distance telephone, all at his own expense.

(g) Alterations.—In case of reduction or increase in quantities of work, by reason of alterations or any cause whatsoever, the Contractor shall accept payment in full at the contract unit prices

for the actual quantities of work done and no allowance will be made for anticipated profits due to such reduction or increase.

(h) Interpretation of Plans and Specifications. —Should it appear that the work to be done or any matters relative thereto are not sufficiently detailed or explained in the plans and specifications, the Contractor shall apply to the District Engineer in writing for such further details and explanations as may be necessary, and he shall conform to the same as part of the contract insofar as they may be consistent with the original specifications and plans. In the event of any doubt or question regarding the true meaning of the specifications, the decision of the District Engineer shall be final. In the event of any discrepancy between any drawing and figures written thereon, figures shall be taken as correct.

Should the Contractor believe that any work ordered is not properly a part of his contract or according to the intent of these plans and specifications, he shall before commencing same notify the District Engineer in writing of his objection to same and shall not perform such work until notified in writing by the District Engineer as to his decision in the matter. The commencement of any such work shall act as a waiver by the Contractor of any objection he may have to the execution of such work, and as a waiver of any claim for extra work in consequence of such order.

These specifications and plans shall be considered as supplementary one to the other, so that ma-

terials and workmanship, indicated, called for, or necessarily implied by the one and not by the other, shall be supplied and placed in the work the same as though specifically called for by both.

(i) Compliance With Legislation.—The Contractor shall conform to all federal, State, County and Municipal laws, ordinances and regulations, which may apply to the work herein provided for, and during the progress thereof, and shall pay for licenses, fees and other charges levied or charged in accordance with such laws, ordinances or regulations, and no claim for extra payment shall be made to the District for such fee, license or charge, it being specifically understood that such licenses, fees or charges are covered by the unit prices bid.

(j) Royalties.—The Contractor shall pay all royalties or other charges that may arise due to methods, types of construction, processes, materials or use of equipment and shall hold the District harmless from any charges whatsoever which may arise, and shall furnish written assurance satisfactory to the Board of Directors that such charges have been paid, and the Contractor shall be liable for all such charges under the bonds furnished with said contract.

(k) Contractor's Liability.—On all work the Contractor is to assume all liability of every kind or nature, arising from said work, either from accident, negligence or any cause whatsoever during the progress of the work and before the final acceptance thereof, and shall indemnify and hold the

District harmless therefrom, and the bonds given by the Contractor shall hold and secure the said District free and harmless from any or all damage or expense whatsoever.

(l) Insurance.—The Contractor at his own expense shall effect and maintain such Liability and Workmen's Compensation Insurance as will protect him, the District and the District Engineer from claims under the Workmen's Compensation Acts and from any other claims for damages for personal injury, including death, which may arise from operations under the contract, whether such operations be by himself or by any subcontractor or by anyone employed directly or indirectly by either of them.

The Contractor shall also at his own expense provide insurance against loss by fire, payable to the District, to cover any and all structures or property belonging to or in possession of the District and placed at the Contractor's disposal in whole or in part, and also to cover all materials accepted but not placed in the work which have been included in the monthly estimates and which have been or are to be taken over by the District.

The Contractor shall, before commencing work on this contract, deliver to the District Engineer certificates from insurance companies or their agents stating that said insurances are in force and will not be cancelled without written notice to the District Engineer.

(m) Sub-letting and Assignment.—No subcontractor will be recognized as such and all persons engaged in the work of construction will be considered as employees of the Contractor and their work shall be subject to the provisions of the contract and specifications. Where a portion of the work which has been sublet by the Contractor is not prosecuted in a manner satisfactory to the District Engineer, the subcontractor shall be removed immediately on the order of the District Engineer and shall not be employed again upon the work.

Neither the contract nor any part thereof shall be assigned unless the Board of Directors first consents in writing to such assignment. Such assignment shall not relieve the Contractor or his bondsmen from any liability whatsoever.

(n) Contractor Guarantees Work.—It is understood that the Contractor is skilled in the trade or calling necessary to perform the work herein set forth and that the District, not being skilled in such matters, relies upon the Contractor to do and perform all work necessary, and to do, supply and furnish all the acts and things necessary, at the proper times and in the most skilful and desirable manner, and the Contractor guarantees the workmanship and materials furnished and supplied to be the best of their kind. The acceptance of any part or of the whole of the work does not operate to release the Contractor or his bondsmen from said guarantee.

(o) Dismissal of Workmen.—The District Engineer may, if he deem it necessary for the good of the work, require the Contractor to dismiss any workman on the work and such person shall not again be employed on the work.

(p) Sanitary Arrangements.—The Contractor shall make provision for and maintain in a sanitary manner at the work, all necessary and sanitary conveniences for the workmen in accordance with the rules and regulations of the Department of Public Health, or the Department of Industrial Relations, acting in conjunction with said Department of Public Health, and of all lawful authority.

(q) District May Perform Work.—(1) The Contractor agrees that if the work to be done under this contract shall be abandoned, or, if in the opinion of the Board of Directors the work or any part thereof is unnecessarily or unreasonably delayed, or if the same is not prosecuted with the diligence and force specified, meant and intended in and by the terms of the contract; or if the Contractor is wilfully violating any of the conditions or covenants of the contract and specifications or of the plans or of any part of the contract, or is executing the work in bad faith, the said Board of Directors shall then have the power to notify said Contractor to discontinue the work or any part thereof under the contract, and thereupon the Contractor shall cease to continue such work or such part thereof as the Board of Directors may designate.

(2) The said District shall thereupon have the power to place such or so many persons and to obtain by contract, purchase or hire such animals, equipment, tools, materials and labor as the District Engineer may deem necessary to work at and to be used to complete the work herein described, or such part thereof as the District Engineer may deem necessary; and to use such material as may be found upon the site of the work, and to procure other material for the completion of the work, and to charge the expense of such labor, material, animals, equipment, etc., to the Contractor, and the expense so charged shall be deducted and paid by the District out of such money as may be due or may at any time thereafter become due to the Contractor under and by virtue of this contract or any portion thereof.

(3) In case such expense is less than the sum which would have been payable under this contract at the unit prices bid, as calculated from the District Engineer's final estimate if the work had been completed by the Contractor, then the Contractor shall be entitled to receive the difference, but in case such expense shall exceed the last said amount then the Contractor and his bondsmen shall be jointly and severally liable to pay the amount of such excess to the District on notice by the District of the amount of excess so due.

(r) Temporary Suspension of Work.—The District Engineer shall have the authority to suspend the work wholly or in part for such period as he

may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for such time as he may deem necessary due to the failure on the part of the Contractor to carry out orders given, or to perform any provision of the contract. The Contractor shall immediately respect the written order of the District Engineer to suspend the work wholly or in part. The work shall be resumed when conditions are favorable and methods are corrected, as ordered or approved in writing by the District Engineer.

(s) Lines and Grades.—The Contractor is to furnish free of charge all stakes necessary for marking and maintaining points and lines given by the District Engineer; and shall give the District Engineer such facilities and materials for giving said lines and points as he may require, and the District Engineer's marks must be carefully preserved.

Sufficient points to line and grade will be set for the Contractor to work to and no additional stakes will be set. Any such stakes or marks lost, damaged or obliterated shall be replaced at the expense of the Contractor.

The Contractor shall do his own engineering and shall be responsible for the completion of the work to proper lines and grades in conformance with the stakes set by the District Engineer.

The District Engineer shall be furnished facilities for the checking of lines, elevations, grades and forms at all times during the progress of the work.

The Contractor shall, without charge to the District, provide openings for and suspend work that will in any way interfere with the surveys, at such times and for such periods as the District Engineer may deem necessary.

(t) Materials.—(1) All materials shall be new and of the best quality of their respective kinds and fully up to the general standards of these specifications, and all workmanship shall be fully up to the highest standard of modern construction and practice.

The District Engineer may at any time order the removal of rejected material from the site of the work.

(2) Materials shall be stored so as to insure the preservation of their quality and fitness for the work. Stored materials shall be located so as to facilitate prompt inspection.

During the progress of the work all material taken up and new material to be used shall be piled and disposed of by the Contractor so that public traffic and private property shall not be unduly interfered with and all material shall be put in places approved by the District Engineer.

(3) Samples of all materials used or offered for use in connection with the work shall be furnished to the District Engineer without cost to the District, and he shall be given facilities and time of not less than twelve (12) days for inspection and testing of materials where necessary, in his opinion, to check other tests.

No material shall be used until it has been approved by the District Engineer.

In addition to the above, the Contractor shall furnish, at his own expense, materials and samples for all tests specified herein or deemed necessary by the District Engineer, and shall provide facilities at his own expense, on all parts of the work and at sources of supply, for the necessary sampling and inspection of materials to be furnished, and of work performed.

The standard and tentative specifications of the American Society for Testing Materials, referred to hereinafter by title or by their serial designations, are made a part of these specifications and of any contract based thereon. When the abbreviation "A.S.T.M." is used, it shall mean the American Society for Testing Materials, whose main office is at 1315 Spruce Street, Philadelphia, Pa. The requirements of said society, except as herein specifically modified or otherwise provided for, shall govern for all materials required to complete any work specified, where detailed specifications are omitted as a whole or in part.

(u) Inspection.—The Board of Directors, District Engineer and other authorized representatives and assistants shall at all times have access to the work during its construction and shall be furnished with every reasonable facility for ascertaining that the stock and materials used or employed, and workmanship are in accordance with the intention of these specifications.

(v) Use of Explosives.—When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property. All explosives shall be stored in a secure manner, in compliance with local laws and ordinances, and all such storage places shall be marked clearly "Dangerous Explosives."

(w) Damage to Property.—The Contractor shall restore, at his own expense, all damaged property, whether public or private, including sidewalks, curbs, fences, pipes, conduits, sewers, monuments, stakes, bridges, culverts, pavements, etc., to a condition as good as it was when he entered upon the work, and in working order for the use and purposes intended. He shall take such precautions as are necessary to avoid damage and he shall properly strengthen structures over which he may move his implements of equipment, before using them.

The Contractor will be held responsible for all damage caused by his equipment or the use of same, and shall hold the District free and harmless from any or all damage or cost of damage whatsoever.

The Contractor shall be responsible for any and all damage to any person or property resulting from defects or obstructions or from any cause whatsoever during the progress of the work or at any time before its completion and final acceptance, and shall indemnify and save harmless the District and its officers and employees from all suits or actions of every name and description brought for, or on

account of any injuries or damages received or sustained by any person or persons by or from the Contractor, his servants or agents; and so much of the money due to the Contractor by virtue of the contract as is considered necessary by the Board of Directors shall be retained by the District until such suits or claims for damages shall have been settled and evidence to that effect furnished to the satisfaction of the Board of Directors.

Where the Contractor uses any private property he shall make all arrangements therefor and shall assume all damages resulting therefrom.

Where property of the District is damaged said District will deduct from any or all payments due an amount sufficient to repair any and all such damage. If the cost of repairing such damage is in excess of the amount due or to become due the Contractor, the Contractor and his bondsmen shall be jointly liable to pay the amount of such excess to the District.

(x) No Personal Liability.—The District, the Board of Directors or any member thereof, the District Engineer, his representatives, or any other officer or authorized employee of the District, shall not in any manner be answerable or accountable for any loss or damage that may happen to the work, or any part thereof, or on account of said work or part thereof, or on account of any action of the Contractor, his agents or employees, whether in connection with said work or the performance of any part thereof, or otherwise, and the Contrac-

tor must make good all damage from whatsoever cause, being strictly responsible for the same under this contract.

(y) Eight Hours to Constitute a Day's Work.—The time of service of any laborer, workman or mechanic employed upon any of the works herein specified shall be limited and restricted to eight (8) hours during any one (1) calendar day, and no laborer, workman or mechanic employed upon said work herein specified shall be required or permitted to labor more than eight (8) hours during any one (1) calendar day, except in cases of extraordinary emergency caused by fire, flood or danger to life or property; provided, however, that within thirty (30) days after any employee is permitted to work over eight (8) hours in any one (1) calendar day, due to such extraordinary emergency, the Contractor or his duly authorized agent shall file with the Board of Directors of the District a report verified by his oath setting forth the nature of the said emergency, which report shall contain the name of said worker and the hours worked by him on said day, and failure to file the said report within the said time shall be prima facie evidence that no extraordinary emergency existed. The Contractor and each subcontractor shall also keep an accurate record showing the names and actual hours worked of all workers employed by him in connection with the said public work, which record shall be open at all reasonable hours to the inspection of the Board of Directors of the District or its agent, and to the chief of the Division of Labor Statistics and Law

enforcement of the Department of Industrial Relations, his deputies or agents.

The Contractor shall forfeit as a penalty to the District ten dollars ($10.00) for each laborer, workman or mechanic employed in the execution of said contract by him or by any subcontractor under him upon any public work herein specified for each calendar day during which said laborer, workman or mechanic is required or permitted to labor more than eight (8) hours in violation of the provisions of Section 653c of the Penal Code of the State of California, and amendments thereto, and said sums and amounts which shall have been so forfeited pursuant to this paragraph shall be withheld and retained from payments due to the Contractor pursuant to this contract and the terms of said act; provided, however, that no sum shall be so withheld, retained or forfeited, except from the final payment, without a full investigation by either the Division of Labor Statistics and Law Enforcement of the State Department of Industrial Relations, or by said Board of Directors.

(z) Structures.—(1) The removal and replacing of any existing structures, pipes, sewers, conduits, wires, etc., necessary for the proper completion of any work herein specified, shall be performed by the Contractor and no claim for extra work shall be made for such removal and replacement.

(2) In case it shall be necessary to remove any telephone, telegraph or electric power transmission

poles, water pipes, electrical conduits, or underground structures of any character, or any portion thereof, the owner or owners thereof, or their agents or superintendents, shall be notified by the Contractor and the Contractor shall make the necessary arrangements for such removal. The right is reserved to the District and also to railway, water, gas, telephone, telegraph and electrical power transmission companies to enter upon the work for the purpose of making repairs and changes that have become necessary by reason of the work specified herein.

(3) The Contractor shall thoroughly investigate all existing poles, wires, pipes and conduits above and below ground and shall provide for the maintenance or replacing of same in good condition and at no expense to the District. Any necessary new or additional pipe or material shall be furnished by the Contractor at his expense.

(4) At the completion of the work the Contractor shall furnish the District Engineer with a written certificate from the owner or owners of each and all such conduits, pipes or structures to the effect that such replacements and maintenance have been satisfactorily performed.

(5) In case work is to be done over or under railroad tracks the Contractor shall make all arrangements with the railroad companies concerned and shall give written notice to the District that such necessary arrangements have been made before any work at such places shall be started.

(z-2) Payment of Not Less than the General Prevailing Rate of Wages.—The Contractor and all subcontractors under him shall pay all their laborers, workmen, mechanics and employees on said work a salary or wage at least equal to the prevailing salary or wage for the same quality of service rendered to private persons, firms or corporations under similar employment, and which salary or wage shall not be less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the work is performed, and not less than the general prevailing rate of per diem wages for overtime work, and which salary or wage shall not be less than the stipulated rates contained in a schedule thereof which has been ascertained and determined by the Board of Directors of the District and which is now on file with the Secretary of said Board and by reference incorporated herein and made a part hereof and a copy of which is hereto appended and marked "Exhibit A." The Contractor shall forfeit as a penalty to the District ten dollars ($10.00) for each laborer, workman or mechanic employed, for each calendar day, or portion thereof, such laborer, workman or mechanic is paid less than the said stipulated rates for work done under said contract, by him, or by any subcontractor under him in violation of Chapter 397 of the Laws of 1931 of the State of California, and said sums and amounts which shall have been so forfeited shall be withheld and retained from payments due to the Contractor

pursuant to this contract and the terms of said Act; provided, however, that no sum shall be so withheld, retained or forfeited, except from the final payment, without a full investigation by either the Division of Labor Statistics and Law Enforcement of the State Department of Industrial Relations or by said Board of Directors.

(z-3) Alien Labor and Record of Names and Citizenship of All Workers Employed.—The Contractor and Subcontractor upon said work herein specified shall not employ or cause or allow to be employed thereon any alien except in cases of extraordinary emergency caused by fire, flood or danger to life or property; provided, however, that within thirty (30) days after any alien is permitted to work thereon due to such an extraordinary emergency, the Contractor doing the work, or his duly authorized agent, shall file with the Board of Directors a report verified by his oath, setting forth the nature of the said emergency and containing the name of the said alien and each date he was permitted to work, and failure to file the said report within the said time shall be prima facie evidence that no such extraordinary emergency existed. The Contractor and each Subcontractor shall also keep, or cause to be kept, an accurate record showing the names and citizenship of all workers employed by him, in connection with the said public work, which record shall be open at all reasonable hours to the inspection of the District Engineer,

his deputies and agents or to the Board of Directors, its deputies and agents, and to the Chief of the Division of Labor Statistics and Law Enforcement of the State Department of Industrial Relations, his deputies and agents.

The Contractor shall forfeit as a penalty to the District ten dollars ($10.00) for each alien employed in the execution of said contract, by him, or by any subcontractor under him, upon said work herein specified, for each calendar day, or portion thereof, during which such alien is permitted or required to labor in violation of the provisions of Chapter 398 of the Laws of 1931 of the State of California, and said sums and amounts which shall have been so forfeited pursuant to the herein paragraph shall be withheld and retained from payments due to the Contractor pursuant to this contract, and the terms of said Act; provided, however, that no sum shall be so withheld, retained or forfeited, except from the final payment, without a full investigation by either the Division of Labor Statistics and Law Enforcement of the State Department of Industrial Relations or by said Board of Directors.

(z-4) Traffic and Detours.—The Contractor shall provide for ingress and egress for people living adjacent to the site of work and for through traffic where good detours cannot be arranged. He shall arrange to take care of the existing traffic so as to inconvenience the public as little as possible. He shall provide and maintain such fences, barriers,

signs, red lights, watchmen and other means as may be necessary to prevent accidents to the public. He shall furnish and place at points designated by the District Engineer such signs as may be necessary to direct or control traffic and shall provide lights as may be necessary for illuminating the said signs.

All expense in connection with the construction and maintenance of detours and the above mentioned provisions for the public safety shall be at the expense of the Contractor.

(z-5) Schedule of Work.—The Contractor shall submit to the District Engineer within five (5) days after signing the contract a proposed schedule of work, setting forth times of commencement, proposed progress and probable dates of completion of the various units and phases of the work. Such schedule may be altered or amended from time to time, by and with the written approval and consent of the District Engineer, but such alteration or amendment shall not in any case be construed to change the final date of completion of the work as set forth in the contract.

[Clerk's Note: As Amended by Plaintiff's Exhibit No. 10.]

(z-6) General Provisions.—In all cases where the said final specifications provide that the Contractor shall submit to the District Engineer with his bid detailed information, test data, performance curves, or other matters pertaining to equipment or materials to be furnished, or data in connection

therewith, or other such information as is hereinafter called for in these specifications to be submitted with bids, such data and information setting forth all of the matters and things as specified shall not be submitted with the bid but instead shall be submitted to the District Engineer in sufficient time to permit of checking and testing but not less than four (4) months prior to the installation of such equipment on the project.

SECTION 7. CLEARING

1. Clearing.—Clearing shall consist of clearing and grubbing the site of the work of all trees, rubbish, stumps, roots, grass, heavy sod, debris, decayed vegetable matter or other encumbrances, and the removal and disposal of same. Trees or stumps within the roadway area shall be removed to a depth of not less than three feet (3′) below the finished grade of any roadway area, and the holes thus made shall be backfilled with earth or gravel and thoroughly tamped. Trees or stumps on portions outside of roadway areas or within the roadway areas upon which fills in excess of three feet (3′) are to be placed, or on areas where the District has slope privileges but which will be under fills, may be cut off at the level of the ground as it exists prior to the placing of the fills. On slopes in excavation, trees, stumps and roots shall be cut off to the line of the finished slopes.

2. Disposal of Cleared Material.—Trees, stumps, brush, limbs and other debris for which burning is

practicable, may be burned or otherwise disposed of away from the site of the work at the expense of the Contractor. No accumulation of inflammable or combustible material shall be permitted to remain on or adjacent to the site of the work. Burning shall be done in a manner to prevent damage to surrounding or adjacent property and shall conform to all rules, regulations and ordinances of the State, County or Municipality where such apply. The District Engineer shall have the right to regulate the hours in which burning is done, so as not to interfere with other portions of the work, and to prevent inconvenience to nearby residents and property owners.

The Contractor shall obtain the approval of the District Engineer as to methods and time of burning, before any such operation is permitted.

Material which cannot be efficiently destroyed by burning shall be removed entirely and disposed of away from the site of the work by the Contractor who shall make his own arrangements for such removal and disposal.

3. Payment for Clearing.—No separate payment or allowance shall be made to the Contractor for work connected with clearing, grubbing and disposal of debris, but the price paid per unit of work under "Grading" shall include full compensation for furnishing all labor, materials, tools, implements and equipment, and doing all incidental work necessary to clear the site of the work as above specified.

SECTION 8. GRADING

1. Description.—Grading shall consist of the performing of all operations necessary, to excavate earth and rock from the roadway prism, to excavate ditches and borrow pits, to build fills and embankments in the locations and to the elevations, form and cross-sections designated or planned for same, to grade all approaches to structures, either existing or new and to make proper connections with existing streets or roadways, to transport excavated material to portions of the work where a deficiency exists within the limits of free haul designated, to dispose of surplus material from the site of the work, and shall include the furnishing of all labor, materials and equipment necessary for these operations and the performance of incidental work of whatsoever nature as may be required to build the grade and the approaches to it and maintain them in the form specified until the completion and acceptance of the contract.

2. Construction Roads.—Grading involved in the building of construction roads which may be required to give easy access to any portion of the work, or to facilitate constructing embankments in layers, or which may be done for the convenience of the Contractor or may be necessary for the proper operations of the Contractor in the conduct of the work, will not be paid for. Full compensation for such work will be considered as included in the price bid for "Grading," and no additional allowance will be made therefor.

3. Unsuitable Materials.—All soft or unsuitable material shall be excavated and the space refilled with good earth, gravel or other suitable material satisfactory to the Engineer, before making fill upon it. Soft spots shall be excavated to a depth of at least two feet (2′) and refilled. The yardage actually removed will be paid for at the unit price bid for "Grading."

In solid rock excavation or other material which cannot be readily plowed, the material shall be loosened and broken up for the full width of the roadbed, so that any ribs or solid projections shall be at least six inches (6″) below subgrade elevation. The yardage so broken up for a depth of six inches (6″) will be paid for at the unit price bid for "Grading." The broken up material shall be removed and the resulting space refilled with approved material, provided, however, that the Engineer may, if, in his judgment, the broken up material is satisfactory for subgrade material, permit such material to remain without removal.

4. Blasting.—Excessive blasting or over shooting will not be permitted and the Contractor will be required to remove at his own expense any material outside the authorized cross-sections which may be shattered or loosened by blasting. The Contractor will be liable for any damages of any nature caused to public or private property, either on or off the right-of-way, by blasting operations. The Engineer shall have authority to require the Contractor to

discontinue any method of blasting which leads to overshooting or is dangerous to the public or destructive to public or private property or to natural features, but such authority of the Engineer shall not relieve or release the Contractor from his responsibility or liability for damages of any kind.

5. Slides.—The removal of large slides from outside the limits of the staked cross-section, which come into the roadway through no fault of the Contractor, will be paid for at the unit price bid for "Grading." This provision shall not be construed as to relieve the Contractor from the duty of maintaining true to cross-section all slopes and ditches, or from the requirements set forth above under "Blasting."

6. Slopes.—Excavations shall be finished with all slopes cut true and straight, in conformity with the lines and grades of slope set by the District Engineer, and all slopes whether old or new shall be maintained with true and even surfaces.

7. Drainage Ditches.—Drainage ditches shall be constructed as shown on the plans or as directed by the District Engineer, true to grade and cross-section, and thereafter so maintained for the duration of the contract. The Contractor shall exercise care to prevent excavating below the grade for the bottom of the ditch. Holes and depressions below the grade of the bottom of the ditch shall be filled with suitable material and compacted at the expense of the Contractor.

Drainage ditches off the line of the right-of-way and water channels for changing the course of streams, where shown on the plans or ordered by the District Engineer, shall be excavated by the Contractor.

8. Widening Cuts.—The District Engineer may direct that cuts be widened and slopes increased over the widths and slopes shown upon the plans, when, in his judgment, such work is necessary to provide material needed for embankments or to obtain stability of slopes; and provided that such direction is given prior to the actual commencement by the Contractor of excavation in the cut to be widened.

If the material is of such nature that it will stand at a steeper slope than that shown on the plans, and when the material that would be excavated by cutting back to the slope shown on the plans is not required or is not suitable for embankment purposes, such slopes shall be decreased where ordered by the Engineer.

9. Selected Material.—When suitable material is encountered in excavation, which, in the opinion of the Engineer, should be used for finishing, the Contractor shall excavate and segregate such material, pile the same within the limits of free haul, and later use this material to surface the roadbed or to construct shoulders. Selected material so stockpiled and later placed on the roadway by the Contractor will be paid for twice at the unit price bid for "Grading." Such additional payment, however,

will not be made if material so stockpiled is not actually placed on the roadway by the Contractor, in which case it will be paid for but once as provided under payment for "Grading."

10. Measurement.—Quantities of excavation will be computed by the method of average end areas, the distance between end areas being measured along the center line of the roadway. Excavation in excess of the authorized cross-section will not be paid for. The final estimate of excavation quantities will be the quantities included within the slope stakes set to define the limits of work and authorized modifications therefrom. This shall include authorized borrow and removal of unpreventable slides. Selected material stock-piled and later placed on the shoulders or used for surfacing will be estimated twice, both when excavated from the roadway and when rehandled from the stock piles.

11. Payment.—The price paid per cubic yard for "Grading" shall include full compensation for clearing and grubbing, the excavation, loading, transporting, depositing, watering and compacting of the roadway materials in accordance with the specifications, and all other work incidental thereto. Excavating unsuitable material, slide removal, excavation of drainage ditches, surface ditches and channels for changing the courses of streams, rehandling stockpiled material on the surface or shoulders will be paid for at the unit price bid for "Grading," which price shall include full compensation for all work necessary or incidental thereto.

Overhaul will be paid for as otherwise herein provided.

12. Embankment.—(a) After the site of the work has been cleared and grubbed to the satisfaction of the Engineer, the total width upon which fill is to be made shall be plowed and broken up so that new fill material will bind with the old earth. When embankments are to be made on hill sides or where new fill is to be applied upon existing embankments, the slopes of the existing surfaces shall be plowed deeply or cut into steps before the filling is commenced.

Only material suitable for embankments shall be used for filling. The best fine surfacing material shall be saved for finishing. Clods or hard lumps of earth over six inches (6″) in greatest dimension shall be broken up before being placed in the fill with the object of obtaining a dense embankment. Large rocks or hard lumps such as hard-pan or cemented gravel which cannot be broken readily shall be distributed throughout the embankment and filled around with fine material so as to secure a dense compact embankment. No such rocks or lumps over six inches (6″) in size shall be placed in the upper two feet (2′) of embankment unless they are buried so as to have a cover of not less than half their greatest dimension.

When embankments are made of stone, the material shall be carefully placed so that the large stones shall be well distributed and the interstices com-

pletely filled with smaller stone and earth to form a dense, solid embankment.

All adobe material placed in embankment shall be deposited at the bottom of the fill and no adobe shall be placed in embankment above a point one foot (1′) below the finished grade.

(b) Compacting.—Except as otherwise specified herein embankments shall be constructed in layers not exceeding eight inches (8″) in thickness. The sides of the fill shall be placed first and the center shall be carried up lower than the sides. Each layer shall be thoroughly compacted by rolling with a twelve (12) ton three-wheeled power roller or with a tamping roller, the outer surface of which shall be studded with teeth not less than seven inches (7″) long and having a surface area of approximately four square inches (4 sq. in.) each; the roller shall be of such a weight that the load upon each tooth will be not less than three hundred pounds (300 lbs.). Unless the material when placed in the fill is moist enough to be properly compacted, each layer shall be watered sufficiently to dampen the material before being rolled. Successive layers shall not be placed until the layer under construction has been thoroughly compacted.

Embankments built of rock or rocky material shall be constructed in layers from eight inches (8″) to not more than eighteen inches (18″) in thickness, and watered and rolled thoroughly with a three-wheeled power roller weighing not less than twelve (12) tons. The use of tamping or sheepsfoot

rollers will not be permitted for compacting layers over eight inches (8″) in thickness. The thickness of the layers of the material containing large rock shall be the minimum which the size of the rock present in the material will permit, but in no case shall the thickness of the layers exceed eighteen inches (18″). The Contractor will be required to break up oversize rock with sledges or otherwise to make the layers conform to the maximum allowable thickness.

In advance of watering and rolling, sufficient earth or other fine material shall be incorporated with the coarse rock, as it is deposited, to provide a dense solid embankment. Overhaul will be paid on such earth or fine material if it is necessary to haul it further than the limit of free haul.

In making fills or embankment around columns, abutments or other parts of structures the work shall be done as specified under "Backfill," paragraph 2 of Section 9.

(c) Shrinkage Allowance and Maintenance.—Embankments shall be maintained to the grade and cross section shown on the plans or otherwise authorized or directed, until the completion and acceptance of the contract. Suitable allowance for shrinkage and compression shall be provided for by the Contractor in the building of embankments.

The Contractor shall be responsible for the stability of all constructed embankments and shall replace, without cost to the District, any portions which in the opinion of the Engineer have become

displaced, due to carelessness or negligence, on the part of the Contractor, his employees or agents.

(d) Surplus Excavated Material.—All surplus excavation and waste material shall be used to widen embankments uniformly or to flatten slopes, or shall be disposed of in such other places and for such purposes as the Engineer may direct. The Contractor shall not waste material without written authority from the Engineer. Full compensation for the disposal of surplus excavated material shall be considered as included in the prices bid per cubic yard for "Grading," and no additional allowance will be made for such disposal.

(e) Payment.—Full compensation for constructing and compacting embankments as herein specified shall be considered as included in the prices bid per cubic yard for "Grading" and no additional allowance and no other charge will be allowed for the performance of any operation specified or intended or necessary to conform properly to the results intended by these specifications.

13. Overhaul.—(a) When excavated material is disposed of as provided by these specifications or as directed by the Engineer, within a distance of five hundred feet, no payment for overhaul shall be made, it being understood that a free haul of five hundred feet is covered by the price paid for "Grading." When excavated material is required to be hauled beyond five hundred feet (500′), the haul beyond five hundred feet (500′) shall be classed as "Overhaul."

Overhaul shall be measured by the station yard and for the purpose of measurement a station is defined as one hundred feet (100'). In computing overhaul, the number of station yards will be determined as the product of the number of cubic yards remaining in any cut, after proper deduction has been made for material placed within the free haul distance by the number of stations such material is hauled, less the five (5) stations of free haul. The distance such material is hauled will be taken as the distance between the center of volume of such remaining cut and the center of volume of the corresponding fill. The distance between centers of volume will be measured along the center line of construction.

The Contractor shall notify the District Engineer when overhaul is to be performed and no payment will be made for any overhaul unless such notification is given and a written authorization obtained from the District Engineer to proceed. Such authorization will set worth the approximate amount of overhaul for which payment will be made, and the method of measurement of same, to be agreed upon by the Contractor in writing. The decision of the District Engineer shall be final in all questions which may arise as to the disposition of material and the amount of overhaul to be allowed.

(b) Payments.—The price bid per station yard for "Overhaul" shall include full compensation for hauling and/or transporting and depositing material beyond the free haul distance as above specified.

SECTION 9. EXCAVATION FOR STRUCTURES

1. Excavation.—Excavation, including the replacing of excavated material or backfill of trenches for pipe culverts, headwalls and concrete culverts, bridges, retaining walls or other structures will be known as "Structural Excavation."

"Structural Excavation" shall include the removal of all material of whatever nature necessary for the construction of foundations and substructures in accordance with the plans or approved modifications thereof. It shall include the construction of all bracing, cribs, cofferdams, caissons and other details as may be necessary and the subsequent removal of bracing, cribs, cofferdams, caissons and other structures. It shall also include the furnishing of all materials and equipment necessary to perform the work specified, together with the incidental structures necessary.

Trenches shall be excavated of a size equal to the approximate size of the structure to be built therein, plus the additional size required for proper cribbing.

2. Backfill.—After the piers and abutments are in place materials shall be backfilled to the original ground line. No material shall be deposited in fills against the backs of abutments or walls until twenty-one (21) days have elapsed after the pouring of the concrete in the main walls taking stress.

Backfill over and around culverts, arches, abut-

ments and columns shall be brought up uniformly on all sides in order to avoid causing binding or distortional stresses in the structures.

Backfill shall be placed carefully in horizontal layers not exceeding eight inches (8″) in thickness and puddled or tamped or rolled as the District Engineer may direct. Puddling shall be prohibited in any situation where it might soften the foundations or develop hydrostatic pressure behind walls. The District Engineer may require selected material to be used in locations where, in his judgment, such use is necessary.

Material which is unsuitable for use in backfill shall not be used as such, but may be used on other parts of the work, if suitable, or, if no such place exists, shall be disposed of by the Contractor at his own expense, in a manner to be approved by the District Engineer. Surplus material which may be suitable for backfill shall be transported and used to backfill where a deficiency of suitable backfill material exists, at the site of structures or to widen fills, and no additional charge shall be made for the transporting and handling of such excess material, or unsuitable material being disposed of.

8. Measurement.—Structural excavation shall be estimated to include the actual volume of material removed to neat vertical planes, surrounding the foundation structure; and no allowance will be made for such excavation outside of neat planes as may be necessary for bracing, cribbing, cofferdams or other auxiliary structures. The top and bottom

limits of computed volume shall be the original ground surface and the bottom of the completed footing; except that for culverts in roadway or ditch cuts the volume will be computed up to the finished subgrade only and for culverts in roadway fills will be computed to the original ground surface before the fill was placed.

No allowance will be made for the removal of material caused by swelling or rising of the ground due to the driving of piles or the flow of materials through or under cofferdams or caissons.

No measurement will be allowed for backfill, but such operation shall be included in the price paid per cubic yard for material in "Structural Excavation."

4. Payment.—The price paid per cubic yard for "Structural Excavation" "Class A" shall include full compensation for excavating, backfilling and disposing of surplus material as specified and including the cost of construction of all bracing, cribs, cofferdams, caissons and other auxiliary structures and their subsequent removal.

If it is necessary in the opinion of the District Engineer to increase the depth of any or all of the excavations more than two feet (2′) below the depth shown on the plans, such excavation below said two foot (2′) additional depth will be paid for at the unit price bid for "Structural Excavation" "Class B."

No measurement will be made or separate payment allowed for "Structural Excavation" where

such excavation is specifically included as part of structures or other units of work and paid for as such, as otherwise provided herein.

SECTION 10. SUBGRADE

1. Description.—The subgrade will be considered as that portion of the roadway forming the foundation on which surfacing or paving is to be placed.

Before the surfacing or paving is placed the subgrade shall be constructed conforming to the grades and cross-sections shown on the plans and in accordance with these specifications.

The finished subgrade shall be true to cross-section, hard, uniform, smooth and must support without perceptible indentation the wheels of heavily loaded trucks.

2. Preparing Subgrade.—The surface of the roadway where pavement is to be constructed shall be brought by excavation and embankment to an elevation two inches (2″) lower than the bottom surface of the pavement, as shown on the plans. The roadbed shall then be thoroughly watered and all fills more than one foot (1′) in depth shall be dyked and flooded with water for a sufficient length of time to allow full settlement to take place. The grade shall then be rolled thoroughly and rolling shall be extended over the adjacent shoulder areas at the same time. Headerboards as hereinafter specified shall then be constructed true to line and grade. The area between the headerboards shall

then be loosened to a depth of approximately six inches (6″) with a rooter, scarifier or plow so operated that no ribs of compacted material will be left in place. Clods shall be broken up and the loosened material disked to its full depth with a cultivator. High spots shall be removed and depressions filled by means of a scraper and the cultivating continued until the soil is pulverized.

The pulverized soil shall be roughly shaped to cross-section and rolled with a power roller weighing not less than three hundred and fifty (350) pounds per lineal inch width of tire. The surface shall then be graded uniformly to a height of two inches (2″) below the bottom surface of the proposed pavement by means of a subgrader or shaper riding on the headerboards. The area between the headerboards shall then be backfilled with gravel or crushed rock backfill hereinafter specified to a depth which will, after final rolling and shaping, make a thoroughly compact subgrade true to crown and section and grade of the bottom of the proposed pavement. The gravel or crushed rock backfill shall then be worked into the previously prepared material by a harrow or cultivator until a uniform distribution of the two materials is had.

The grade shall then be watered uniformly with a sufficient quantity of water to saturate the mixed materials and shall be worked with a cultivator until the loose material for its entire depth is at the proper consistency for rolling. If dry spots become apparent, or, if spongy or wavy spots due to

use of two much water or not enough harrowing develop during rolling, the condition shall be corrected before proceeding further. Rolling shall be continued until no more compression is possible. Additional gravel or crushed rock shall be added where necessary to bring the section to the required elevation, and rolling and watering shall be continued until the entire subgrade is smooth and compact and slightly higher than the finished subgrade elevation.

Immediately after rolling the subgrade shall be cut to true grade and cross-section by means of a subgrader riding on the headerboards. The excess material shall be removed immediately and on the final cut the wheels of the subgrader shall rest on the headerboards at all points as indicated when they are revolving.

After the final cut the subgrade shall be checked by means of a scratch template. The nails in this template shall be not more than three inches (3″) apart and shall project at least three-quarters of an inch (¾″) from the wood in such a manner as to be on line for the true depth and surface of the subgrade when the template is supported on each side of the headerboards. Any high spots in the subgrade shall be immediately corrected. Low spots will be backfilled, provided the entire area is scarified, watered and rerolled after such backfilling or the Contractor may compensate for the low subgrade by additional thickness of pavement. No alteration of the finished pavement grade will be

permitted on account of low subgrade, and the additional thickness of pavement shall be provided by the Contractor at no expense to the District.

When the subgrade has been finally tested and approved by the District Engineer it shall again be watered and shall then be protected by the Contractor against damage by either his own or public traffic. Any irregularities which develop in the subgrade due to use thereof by the Contractor or the public or by storage of materials, or by any other cause, shall be corrected by the Contractor before pavement is placed.

3. Crushed Rock or Gravel Backfill.—The crushed rock or gravel backfill required for making subgrade shall be such a mixture of crushed rock or gravel or broken rock as will readily compact and after rolling and watering will make a hard, firm dense subgrade. Material from the roadway excavation will not be used for this backfill. The material shall not contain any rock or gravel over one inch (1″) in its largest dimension, and shall all be retained on a screen having one-quarter inch (¼″) openings. The Contractor shall submit samples of the material to be used to the Engineer and receive his approval before any shall be placed on the grade.

4. Payment.—The price paid per square foot for the various types of pavement shall include full compensation for all plowing, harrowing, watering, rolling, furnishing and placing crushed rock or

gravel, backfill, grading and shaping and finishing subgrade, and for furnishing all labor, materials, tools, implements and equipment and doing all work incidental to shaping and preparing the subgrade for pavement.

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SECTION 13. PORTLAND CEMENT CONCRETE

Composition of Concrete

1. Description.—Portland Cement Concrete shall be composed of specified mixtures of Portland Cement, fine aggregate, coarse aggregate and water, in two (2) general classes, as follows:

Class "A"—For sections of concrete structures having a thickness of eight inches (8") or less, or having reinforcing bars spaced four inches (4") or less in the clear.

Class "B"—For pavement, and for sections of concrete structures, including tunnel lining, having a thickness greater than eight inches (8") and having reinforcing bars spaced more than four inches (4") in the clear.

For concrete structures where strict adherence to this classification would require placing both concrete of Class "A" and Class "B" in small quantities in a continuous placement, the District Engineer

may permit the use of either class of concrete throughout the section, as he deems desirable, and his judgment in such cases shall be final.

2. Proportions and Consistency.—The proportions of fine and coarse aggregate to be used for each class of concrete will be determined by the District Engineer after the materials have been delivered to the site of the work. Such proportions will depend upon the grading of the aggregates, but the amount of fine aggregate shall always be the minimum amount required, which, when combined with cement, will produce only a slight excess of mortar over that necessary to completely fill the voids in the coarse aggregate. The District Engineer shall have the right to change the proportions of cement and of fine and coarse aggregate and the consistency of the concrete mix, when, in his judgment, such change is desirable.

The amount of water required for the proper consistency of each class of concrete shall be determined by the District Engineer by means of the slump test, made in accordance with the Tentative Method of Test for Consistency of Portland Cement Concrete, Serial Designation D 138-26T, of the American Society for Testing Materials. In general, the consistency of the concrete shall be as dry as in the judgment of the District Engineer, can be thoroughly compacted in the forms through the use of vibratory tampers to completely fill the forms without voids or stone pockets.

Samples for slump tests will be taken from the mixture immediately as it enters the forms.

Class "A" Concrete shall be a mixture as herein specified, in which the amount of cement in the finished product shall be not less than five hundred and seventeen (517) pounds and not more than six hundred and eleven (611) pounds per cubic yard of concrete. It is expected that the proportions of cement, fine aggregate and No. 4 to one and one-half inch (1½") coarse aggregate will be approximately 1:2:4 by weight, and that the slump will be not less than two inches (2") nor more than four inches (4").

Class "B" Concrete shall be a mixture as herein specified, in which the amount of cement in the finished product shall be not less than four hundred and seventy (470) pounds and not more than five hundred and sixty-four (564) pounds per cubic yard of concrete. It is expected that the proportions of cement, fine aggregate, No. 4 to one and one-half inch (1½") coarse aggregate and one and one-half inch (1½") to two and one-half inch (2½") coarse aggregate will be approximately 1:2½:4:1 by weight, and that the slump will be not less than one inch (1") nor more than four inches (4").

The range in amounts of cement and in permissible slump is for the purpose of obtaining the best mix with the aggregates furnished, adapted to the methods of transportation and placing of concrete to be used by the Contractor in the various structures. In general, when the maximum slump is

necessary, the larger amount of cement will be required, but it is the purpose and intent to obtain mixtures which will produce the desired strength with the minimum amount of cement. It is hereby specified, and the District Engineer will require, that methods of handling and placing be adopted which will permit the use generally of a mixture whose consistency will approximate the lower limits of the specified slumps.

Should conditions arise which, in the opinion of the District Engineer, require, for proper transporting and placing, the use of concrete mixtures which have consistencies producing a slump in excess of the maximum specified, the District Engineer shall determine an additional amount of cement to be added to the mixture for the purpose of obtaining a strength equivalent to that of the specified mixture, and the Contractor shall furnish such additional cement at his expense and without charge to the District. The judgment of the District Engineer shall be final and binding upon the Contractor as to the necessity for and the amount of additional cement to be furnished and used.

This provision shall not be construed as giving the Contractor the option of supplying additional cement as an alternative to using methods of transporting and placing concrete of the type specified, but is intended only to meet special or unusual conditions which may arise due to the nature of the work and the possible hazards which may be involved.

Cement

3. Description.—The cement used in concrete shall consist of Portland cement conforming to the requirements of the Standard Specifications for Portland Cement, Serial Designation C9-30 of the American Society for Testing Materials.

4. Delivery.—Cement shall be furnished in bags or sacks containing ninety-four (94) pounds of cement net, with the brand and the name of the manufacturer plainly marked thereon, or, with the approval of the District Engineer, may be furnished in bulk.

5. Storage.—Cement shall be stored so as to permit of ready access for inspection and identification of each shipment, and shall be protected from exposure to moisture until used. Cement shall not be stored on the work longer than sixty (60) days, and any cement that becomes caked, lumpy or hardened shall be rejected and removed at the Contractor's expense.

6. Plant Inspection and Testing.—The Contractor shall make arrangements with the cement company from whom cement is purchased to set aside sealed bins from which samples may be taken by the Engineer, and no cement shall be shipped to the work except from such bins. Information for identification of the bin from which cement is obtained with times of filling, sampling and shipment shall accompany each shipment of cement. No cement shall be shipped to the work until it shall have satisfactorily passed all tests required by these speci-

fications, including the 28-day test for tensile strength. At intervals of approximately one month, the records of quantities of cement shipped, cement received, cement used in concrete, and cement remaining in storage at the work shall be made available to the Engineer.

The Engineer shall have the right to sample and test cement on the work, and the approval of any cement at the plant shall not prevent the rejection of cement on the work when such cement does not in every respect conform to these specifications.

Water

7. Description.—Water used for mixing concrete shall be clean and clear, free from injurious amounts of acids, alkalis, oil, sulphates, organic matter or other deleterious substances. In determining the suitability of water for use, the Engineer's judgment shall be final. Water from the regular supply of the East Bay Municipal Utility District will be considered satisfactory.

Aggregates

8. Description.—Aggregate shall consist of clean, hard, strong, durable particles of inert mineral material, free from injurious amounts of organic matter, oil, alkali and salt, and conforming to the requirements of these specifications. Aggregate shall consist of three classes, namely, fine aggregate, No. 4 to 1½ inch coarse aggregate, and 1½ to 2½ inch coarse aggregate.

For each class of aggregate the amount of clay shall not exceed one per cent (1%) by weight, and the total amount of clay, shale and soft or flaky particles shall not exceed five per cent (5%) by weight.

Aggregate for test shall be sampled in accordance with the Standard Methods of Sampling, Serial Designation D75-22, of the American Society for Testing Materials. The sieve analysis shall be made in accordance with the Standard Method of Test for Sieve Analysis of Aggregates for Concrete, Serial Designation C41-24 of the American Society for Testing Materials.

Aggregate of each class shall be from one source of supply only, except by permission of the District Engineer. Prior to the beginning of the work the Contractor shall submit representative samples to the District Engineer for test and approval, and the grading of aggregates as furnished shall not vary from that of the approved samples by more than the amounts hereinafter specified.

9. Fine Aggregate.—Fine aggregate shall consist of washed sand conforming to the requirements of these specifications.

The total amount of clay, silt and other material removable by decantation shall be not less than one per cent (1%) and not more than three per cent (3%) by weight, when tested in accordance with the Standard Method of Decantation Test for Sand and other fine aggregates, Serial Designation

D 136-28, of the American Society for Testing Materials.

The amount of organic matter shall be not greater than that which will produce a color equal to or lighter than that of the standard color solution, when tested in accordance with the Standard Method of Test for Organic Impurities in Sands for Concrete, Serial Designation C 40-27, of the American Society for Testing Materials.

Briquets of mortar made of one part of cement to three parts of fine aggregate, by weight, shall develop after the age of seven (7) days not less than ninety per cent (90%) of the strength of similar briquets made of standard Ottawa testing sand, using the same cement, the same mix, and having the same consistency.

Fine aggregate shall be well graded from coarse to fine within the specified limits, and when tested by means of laboratory sieves shall conform to the following requirements:

Passing No. 4 sieve	95% to 100%
Passing No. 30 sieve	25% to 45%
Passing No. 50 sieve	5% to 15%

The fineness modulus of fine aggregate as expressed by 1/100 of the sum of the cumulative percentages coarser than each of the Tyler standard sieves in the standard sieve analysis shall be not less than 2.50 nor more than 3.25.

The grading of fine aggregate shall be reasonably constant and the fineness modulus shall not vary from that for the approved representative sample submitted at the beginning of the work by more than ± 0.20.

10. Coarse Aggregates.—Coarse aggregate shall consist of washed gravel, washed crushed stone or washed crushed gravel, free from adherent coatings and conforming to the requirements of these specifications.

The total amount of clay, silt and other material removable by decantation shall be not more than five-tenths per cent (0.5%) by weight when tested in accordance with the Standard Method of Test for Quantity of Clay and Silt in Gravel for Highway Construction, Serial Designation D72-21, of the American Society for Testing Materials.

Coarse aggregate shall pass the Sodium-sulfate test for soundness, made in accordance with the Tentative Method of Test for Soundness of Coarse Aggregates by the Use of Sodium Sulfate, Serial Designation C89-31T, of the American Society for Testing Materials, except that aggregates failing in the accelerated soundness test may be used if they pass a freezing and thawing test satisfactory to the District Engineer.

Coarse aggregates shall have a French coefficient of wear of not less than ten (10) when tested in accordance with the Standard Method of Test for Abrasion of Rock, Serial Designation D2-26, of the American Society for Testing Materials.

Coarse aggregate shall be batched in two separate sizes, herein designated as No. 4 to 1½ inch coarse aggregate, and 1½ to 2½ inch coarse aggregate.

No. 4 to 1½ in. coarse aggregate shall be well graded within the specified limits, and shall conform to the following requirements:

Passing a sieve having 1½ in. sq. openings	95 to 100%
Passing a sieve having ¾ in. sq. openings	60 to 75%
Passing a No. 4 sieve	0 to 5%

The 1½ to 2½ in. coarse aggregate shall conform to the following requirements:

Passing a sieve having 3 in. sq. openings	100%
Passing a sieve having 2½ in. sq. openings	95 to 100%
Passing a sieve having 2 in. sq. openings	75 to 95%
Passing a sieve having 1½ in. sq. openings	20 to 40%
Passing a sieve having ¾ in. sq. openings	0 to 10%
Passing a No. 4 sieve	0 to 5%

For each coarse aggregate the grading shall be reasonably constant, and the fineness modulus as expressed by 1/100 of the sum of the cumulative percentages coarser than each of the sieves in the

standard sieve analysis, except the 1-inch and 2-inch sieves, shall not vary from that for the approved representative sample submitted at the beginning of the work by more than ± 0.50, except by special permission of the Engineer.

In case the concrete is not of workable character, or when finished does not exhibit a proper surface due to the presence of an excess of particles approximately one-eighth inch (⅛") to one-half inch (½") in size, either a fine aggregate having a sufficiently greater percentage of fine material or a No. 4 to 1½ inch coarse aggregate having a sufficiently smaller percentage of fine material shall be used, as directed by the Engineer.

Coarse aggregate used in Class A Concrete shall consist of No. 4 to 1½ inch coarse aggregate only. Coarse aggregate used in Class B concrete shall be a mixture of No. 4 to 1½ inch and 1½ to 2½ inch coarse aggregates, in proportions as directed by the Engineer, and batched separately.

11. Combined Aggregate.—The combined aggregates including the fine aggregate shall be so graded as to obtain, in the judgment of the Engineer, concrete of maximum density and strength with suitable workability and without the use of an excessive amount of cement. In general, it is expected that the percentage composition by weight will be within the limits in the following tabulation:

Combined Aggregate Grading	Percentage 0 to 2½ in. Aggregate	0 to 1½ in. Aggregate
Passing a 3-in. square opening	100	
Passing a 2½-in. square opening	97 to 100	
Passing a 2-in. square opening	92 to 99	100
Passing a 1½-in square opening	80 to 90	97 to 100
Passing a ¾-in. square opening	62 to 75	70 to 80
Passing a No. 4 sieve	29 to 39	35 to 45
Passing a No. 8 sieve	21 to 30	26 to 35
Passing a No. 16 sieve	16 to 24	19 to 27
Passing a No. 30 sieve	7 to 13	9 to 15
Passing a No. 50 sieve	2 to 5	2 to 6
Passing a No. 100 sieve	0 to 3	0 to 4

12. Storing Aggregates. — Bins and stockpiles shall be so arranged that the various classes of aggregates will be kept completely separate until batched. Aggregates shall be stockpiled or handled in such manner as to avoid separation of the coarser and finer particles.

Care shall be taken that foreign matter caused by passing traffic or by other means does not become mixed with the aggregates. When necessary, roads and detours adjacent to the piles of aggregate shall be kept moist at the expense of the Contractor in order to keep dust from coating the aggregates.

Each of the various aggregates shall have a reasonably uniform and stable moisture content when batched and placed in the mixer. The moisture content of fine aggregate shall not exceed eight per cent (8%) by weight when batched.

At least one hundred and fifty (150) cubic yards of fine aggregate, two hundred and fifty (250) cubic

yards of No. 4 to 1½ inch coarse aggregate, and one hundred (100) cubic yards of 1½ to 2½ inch coarse aggregate shall be stored at the work before beginning each day's concreting.

MEASURING MATERIALS

13. Description.—The several ingredients of concrete, including water, shall be measured separately before being mixed. Uniform proportions of materials in each batch will be positively required with a tolerance of one per cent (1%) for cement and two per cent (2%) for aggregates. All measuring devices shall be furnished by the Contractor, and shall be capable of ready adjustment for changing the concrete mix proportions.

Cement shall be measured by weight, except that cement furnished in sacks as herein specified and measured in even multiples of one sack will be considered as weighing ninety-four pounds (94 lbs.) per sack without further weighing.

Water shall be measured by a water-measuring device satisfactory to and controlled by the Engineer, capable of being locked at any fixed setting and so constructed that the water can be discharged only while the mixer is being charged.

Fine and coarse aggregates shall be measured by weight, except for small isolated structures when, by the special permission of the Engineer, they may be measured by volume, as the Contractor may elect.

When cement or aggregates are measured by weight, the scales shall be consistently accurate, and shall be sealed at the expense of the Contractor as frequently as the Engineer may deem necessary to insure their accuracy. The apparatus for indicating weight shall be readily visible for inspection at all times.

When fine or coarse aggregate is measured by volume, the Contractor shall provide measuring batchers such that the amount of aggregate measured thereby may be readily checked by the Engineer at any time.

MIXING

14. Description.—All concrete shall be mixed in a batch mixer of approved type and capacity which will insure a uniform distribution of the materials throughout the mass so that the mixture will be homogeneous and uniform in color. The mixer shall be equipped with a suitable charging hopper, water storage and water measuring devices and with a device for automatically locking the discharge lever until the batch has been mixed the required time. The mixer shall be cleaned at frequent intervals when in use.

The capacity of the concrete mixer shall be sufficient to provide a uniform operation in the mixing and placing of the concrete, consistent with the required progress of the work, the magnitude of units required to be completed in a continuous operation or placement, and the physical features of the con-

crete section being placed. The volume of the mixed material per batch shall not exceed the manufacturer's rated capacity of the mixer.

The mixing of each batch shall continue not less than one (1) minute for a mixer of one cubic yard or less capacity, and not less than one and one-half (1½) minutes for a mixer of capacity greater than one cubic yard, after all materials are in the mixer and before any part of the batch is released from the mixer. The rate of rotation of the mixer drum shall be such as to insure thorough mixing in the time specified. The entire contents of the mixer shall be discharged before recharging.

Remixing or retempering of concrete, grout or mortar which has appreciably set or hardened shall not be permitted, and such partially hardened material shall be removed from the work.

No concrete shall be mixed while the air temperature is below thirty-six degrees (36°) F. unless adequate means, approved by the District Engineer, are employed to heat the aggregates and water, and unless satisfactory provision is made and carried out for protecting the work. The use of any salt or chemical to prevent freezing will not be permitted.

Placing

15. Description.—Concrete shall be transported from the mixer to the forms and placed in the forms as specified in Section 15, "Concrete Structures."

Damaged or Defective Concrete

16. Description.—Concrete or concrete materials not complying with these specifications in all respects shall be removed from the site of the work without additional compensation therefor.

Concrete damaged by freezing, or from any other cause, or any concrete which shall be found defective in quality or workmanship at any time before the completion and acceptance of the work, shall be removed and replaced with acceptable concrete by the Contractor at his expense, and as directed by the Engineer.

Payment

17. Description.—Portland cement concrete will be measured and paid for as provided under the various items of work in which it is used.

SECTION 14. REINFORCING STEEL

1. Material.—Reinforcing steel shall conform in physical and chemical composition and in method of manufacture to the requirements of the American Society for Testing Materials, Standard Specifications for Billet Steel Concrete Reinforcement Bars, Structural Steel Grade (Serial Designation A 15-30).

All reinforcing steel shall be branded with the maker's brand and the Contractor shall furnish in writing a statement giving the maker's name and the distinctive brand used for identification.

2. Description.—Reinforcing steel shall be of open hearth method of manufacture, structural steel

grade and rolled from new billet stock, and showing no mill scale or rust.

All bars shall be of deformed or corrugated type and shall have the following net sections:

One-quarter inch (¼") round net section	0.05 sq. in.
Three-eighth inch (⅜") round net section	0.11 sq. in.
One-half inch (½") round net section	0.20 sq. in.
One-half inch (½") square net section	0.25 sq. in.
Five-eighths inch (⅝") round net section	0.31 sq. in.
Three-quarters inch (¾") round net section	0.44 sq. in.
Seven-eighths inch (⅞") round net section	0.60 sq. in.
One inch (1") round net section	0.79 sq. in.
One inch (1") square net section	1.00 sq. in.
One and one-eighth inch (1⅛") square net section	1.27 sq. in.
One and one-quarter inch (1¼") square net section	1.56 sq. in.

3. Sampling.—Reinforcing steel will be sampled by the Engineer at the source of supply if within the State of California, and the Contractor shall notify the Engineer in sufficient time before shipment is made to permit sampling and testing. If material is obtained outside the State of California

sampling will be done at the point of distribution within the State. Steel submitted for sampling at mill, warehouse, or upon the work shall be identified by heat or mill number and accompanied by mill analysis and test reports. All test samples shall be furnished by the Contractor without cost to the District. Facilities must be provided for the Engineer, both on the work and at the source of supply, for the sampling of all steel furnished or to be furnished.

4. Cleaning.—Reinforcing steel shall be thoroughly cleaned of all scale, rust, mortar, oil, dirt, or coatings of any character that will tend to destroy or reduce the bond before being placed in the forms.

5. Steel Lists.—Reinforcing steel lists showing full details of cuts and bends shall be submitted in triplicate by the Contractor, at his own expense, to the Engineer for approval. Such approval shall not be construed as relieving the Contractor of full responsibility for the accuracy of details and lists.

6. Bending.—Reinforcing steel shall accurately conform to the dimensions shown on the plans. The radius of bends shall be not less than four times the least dimension of the bar. All bends in field or shop shall be cold bends, and in no case shall the steel be heated for bending or straightening. Bars with kinks or unauthorized bends shall not be used.

7. Placing.—Reinforcing bars shall be accurately shaped, bent, assembled and placed in the forms or position intended, as shown on the plans or as other-

wise authorized. They shall be firmly and securely held in position by wiring at intersections with at least two wraps of No. 16 gauge soft black annealed wire; and by using concrete or metal chairs, spacers, metal hangers, supporting wires and other approved devices, furnished by and at the expense of the Contractor. Metal supports which extend to the surface of the concrete and wooden supports shall not be used. Placing bars on layers of fresh concrete as the work progresses and adjusting bars after concrete is poured will not be permitted.

All spliced bars shall lap over each other not less than forty times the least dimension of the bar and shall be securely wired together in at least two places, having five (5) wraps each of No. 16 gauge soft black annealed wire. Where adjacent bars are spliced, arrangement shall be made to break joints.

Full length bars shall be used wherever possible. Splices in lower longitudinal bars in beams shall be made only at the supports of the beams. Bent up bars shall end as detailed on the plans and shall have no splices. Splices of tensile reinforcement at points of maximum stress shall be avoided.

Bars shall be accurately spaced as shown on the plans. In no case shall the clear distance between parallel bars be less than two inches (2"). The clear space between the face of the concrete and the face of steel shall not be less than one and one-half inches (1½").

No concrete shall be deposited until the Engineer has inspected the placing of the reinforcing steel and given permission to place concrete.

All concrete placed in violation of this provision will be rejected and must be removed at the Contractor's expense.

8. Measurement of Quantities. — Reinforcing steel in place will be paid for by the pound except where specifically provided elsewhere that compensation for furnishing and placing reinforcing steel shall be considered as included in the prices paid for other items of work.

Weights of reinforcing steel shall be calculated on the basis of the following unit weights:

	Pounds per lineal foot
One-quarter inch (¼") round	0.17
Three-eighths inch (⅜") round	0.38
One-half inch (½") round	0.68
One-half inch (½") square	0.86
Five-eighths inch (⅝") round	1.06
Three-quarters inch (¾") round	1.52
Seven-eighths inch (⅞") round	2.07
One inch (1") round	2.70
One inch (1") square	3.44
One and one-eighth inch (1⅛") square	4.35
One and one-quarter inch (1¼") square	5.37

Only reinforcing steel in place, and covered with final concrete will be paid for, and the poundage will be calculated for straight line lengths, no splices

included, except where splices are specifically detailed or called for on the plans.

No poundage will be allowed for clips, tie wires, metal chairs, spacers, hangers, supporting wires or other such devices.

9. Payment.—The price paid per pound for reinforcing steel in place shall include full compensation for furnishing, hauling, transporting, bending and placing all reinforcing steel, furnishing all the tie wire and supporting devices and doing all work necessary or incidental to furnishing and placing reinforcing steel as herein specified or as shown on the plans.

No measurement will be made or separate payment allowed for "Reinforcing Steel" where such steel is specifically included as part of structures or other units of work and paid for as such, as otherwise provided herein.

SECTION 15. CONCRETE STRUCTURES

1. Description.—"Concrete Structures" shall include concrete bridges, buildings, viaducts, headwalls, retaining wall, foundations, footings, tunnel linings, accessory structures or parts thereof, and all work or structures in which either plain or reinforced concrete is used; and the specifications herein contained shall apply, except as modified or otherwise provided for by specific provisions or details set forth for particular structures or work or parts thereof in other parts of these specifications.

Concrete structures shall be constructed to the

lines and grades given by the Engineer and in accordance with the Standard, typical or special designs shown on the plans, including details which may be furnished by the Engineer from time to time during the progress of the construction.

All materials used in concrete structures shall conform to the specifications herein contained for such materials and to any special provisions or details elsewhere herein provided for particular structures or work, or parts thereof. Concrete used in concrete structures shall conform in all respects to the specifications herein for "Portland Cement Concrete."

Foundations

2. Description.—The elevations and shapes of the bottoms of footings, as shown on the plans, shall be considered as approximate only, and the Engineer may order in writing such changes in dimensions or elevations, or shapes of footings, as may be necessary to secure a satisfactory foundation. It is understood and agreed that the determination of the nature, type and depth of footings can be made only as excavation progresses, and the earth or rock structures are exposed, and the Engineer shall have full power and authority to make such changes or alterations in the foundation details as he may deem necessary upon inspection of the excavation and the materials excavated. The Contractor shall have no claim for extra payments other than the unit prices bid for the various units of the work.

The Contractor shall dig test pits before opening up an excavation, or during the process of excavating, if ordered in writing to so do by the Engineer. Material excavated for such purposes shall be paid for as "Structural Excavation" provided that where such test pits become a part of the foundation excavation the material so excavated will be measured and paid for once only, and the Contractor shall not be entitled to any separate or special payment for the separate handling or excavation of such material.

3. Cofferdams and Caissons.—Where cofferdams, caissons, cribbing or other devices are necessary for the proper construction of footings or foundations, the Contractor shall construct the same of such sizes, strength and materials as may be necessary to provide proper clearances and perform the functions for which they are constructed.

The Contractor shall submit to the Engineer for his approval drawings showing the proposed methods and details of such construction, and shall not proceed with such work until details and methods satisfactory to the District Engineer have been furnished; provided, however, that approval by the District Engineer shall not relieve the Contractor of his responsibility under this contract for the successful construction of the work or for any loss or damage which may occur due to methods or types of construction.

No shorings will be permitted in cofferdams or caissons which will induce stress, shock, or vibration

in the permanent structure; cross-struts or bracing below low water may be permitted to extend through foundation concrete only upon written permission of the District Engineer. Such timbers above low water shall be removed, and all volumes displaced by removed timbers shall be filled with concrete of the same mix as the surrounding concrete.

Cofferdams and cribs with all sheeting and bracing shall be removed to the level of the natural ground adjacent thereto by the Contractor at his own expense after the completion of the substructure. The removal shall be effected in such a manner as not to disturb or mar the finished structure.

When conditions are encountered which, in the opinion of the District Engineer, render it impossible to unwater the foundation before placing concrete, the Contractor shall deposit under water, by means of a tremie or bottom dump bucket, a layer of concrete of sufficient thickness to thoroughly seal the cofferdam. This seal shall be allowed to remain in place not less than seven (7) days before unwatering, so as to set sufficiently to withstand the hydrostatic pressure.

After sufficient time has elapsed to insure proper strength in the concrete, the footings shall be unwatered and the remainder of the concrete poured in the dry.

4. Pumping.—Pumping from any foundation shall be performed in such a manner as to preclude the possibility of any portion of the concrete materials being carried away. Pumping will not be

permitted during the placing of concrete, nor for a period of twenty-four (24) hours thereafter, unless it be done from a suitable sump separated by a tight wall from the concrete being poured.

5. Inspection.—No concrete shall be placed in any excavation until the District Engineer shall have approved the depth of the excavation and the character of the foundation material.

6. Payment.—The price paid per cubic yard for "Structural Excavation" shall include full compensation for all cribbing, shoring, bulkheading, caissons and cofferdam construction, sealing and unwatering of foundations and any work incidental thereto, including the removal of such cribbing, shoring, bulkheading, caissons, cofferdam construction, and other accessory structures and any other work, material, labor or equipment made necessary for the proper excavation and preparation of the foundations and footings to construct the concrete substructure.

Concrete placed to seal footings shall be measured and paid for in the same manner as provided for the concrete in the substructure.

Forms and Falsework

7. Forms.—Forms shall be of dimensions and to lines and grades as shown on the plans or as directed by the District Engineer. The design of forms shall be adapted to the structure and shall be satisfactory to the District Engineer. Forms shall be constructed and maintained smooth and tight and

shall be substantially built and securely tied and braced to prevent any movement or deflection during the placing of concrete. Forms for the tunnel lining shall be of steel. Well matched lumber or steel shall be used for forms for all other structures or parts thereof.

Forms shall be of sufficient strength to carry the dead weight of the concrete as a liquid without deflection, and, if any deflection occurs, it shall be sufficient cause for the rejection of the work. In general, wooden sheathing for all outside surfaces above the permanent surface of the ground shall be worked from one inch (1") by eight inch (8") or one inch (1") by six inch (6") stock with edges rabbetted to form a lap siding. The material shall be S1S 2E Douglas Fir lumber, free from defects that will result in unsatisfactory concrete structures. Outside surfaces as herein intended shall include the faces of wing walls and abutments above ground slopes, the faces of piers extending beyond the outside of outside girders or arch rings, the outside surfaces of outside girders and arch rings, the surfaces of copings, parapets and curbs, and all surfaces seen in side elevation. Except where otherwise directed by the District Engineer, the rough side of the lumber shall be applied against the concrete.

All sharp edges shall be chamfered with one inch (1") by one inch (1") triangular fillets, unless otherwise shown on the plans or directed by the District

Engineer. Curved surfaces where steel forms are not used shall be formed of elementary strips not over four inches (4″) wide and of well matched lumber. On parapet forms the workmanship shall be equivalent to first class pattern work. Where necessary, in the opinion of the District Engineer, to make a perfect mold, forms shall be oiled or shall be painted if the District Engineer requires, with one coat of white shellac before being used.

Forms shall be constructed so that portions, where finishing is required, may be removed without disturbing other portions.

When ties extending through the concrete are used to support or strengthen forms, they shall be so constructed and so removed that no tie other than metal will be left in the concrete, and that no metal tie which extends within one inch (1″) of any concrete surface which will be exposed to view or to weather shall be left in the concrete.

Forms shall be thoroughly wet or oiled inside and outside immediately before concrete is to be placed, and all excess water shall be drained away. All dirt, chips, sawdust and other foreign matter shall be removed before any concrete is deposited. Lumber which has been previously used for forms shall be thoroughly cleaned before again being used.

Complete forms shall not extend more than five feet (5′) above concrete previously laid or being laid except by permission of the District Engineer. Forms shall be so constructed that free access can

be obtained to them to permit proper spading, working and tamping of the concrete.

Forms and falsework supporting concrete beams, slabs or other members subject to direct bending stress, or forms or falsework supporting any loads shall be left in place at least twenty-one (21) days unless otherwise permitted by the District Engineer. At time of low temperature of other adverse conditions, the District Engineer may increase the time before forms or falsework may be removed, if, in his judgment, this seems necessary. Vertical or side forms not supporting loads shall be left in place from two (2) to five (5) days. Such forms shall be so constructed that they may be removed without disturbing load-resisting forms. No forms or falsework shall be removed until the proposed removal is approved by the District Engineer.

8. • Falsework.—The Contractor shall provide a substantial system of falsework which will not deflect or sag during the process of placing concrete, and which can be taken down and removed without jar or vibration to the structure. Falsework shall be supported on posts, piles, columns or footings adequate to support safely the loads to be imposed without deformation or settlement. Where wedges are used to bring forms or falsework to exact position and elevation, they shall be used in pairs to insure uniform bearing. Laminated sections will not be permitted.

Where danger exists during the construction period from flood waters or overflows, footings and

posts shall be set deep enough in the ground to prevent undermining and the Contractor shall assume all risks as to safety, stiffness and adequacy of falsework and supports used on the work.

The Contractor shall furnish to the District Engineer for approval, plans of staging and falsework to be used on the work. The approval of the District Engineer shall not relieve the Contractor of his full responsibility for the accuracy of dimensions, details and strength of falsework, or of the safety of the structure during construction, and the Contractor shall be responsible for any injury or damage arising from inadequate forms or falsework or from the premature removal of forms or falsework.

9. Payment.—No separate charge or payment shall be made for the construction and removal of forms or falsework, but the price paid for Portland Cement Concrete in the structure shall include full compensation for the construction and removal of forms and falsework, and for all work incidental thereto.

Placing Concrete

10. Time and Rate of Placing.—No concrete shall be placed unless an authorized representative of the Engineer is present, and the Contractor shall give ample notice to the Engineer as to the time he intends to start the placement. Where continuous placement is called for by the specifications or plans, the Contractor shall satisfy the Engineer that all

provisions for such placement is adequate and complete before starting the work.

Parts of each structure which depend upon each other for strength shall be cast at the same time. Slabs, girders and floor beams shall be placed continuously as a single unit, without stopping the work for more than thirty (30) minutes. Where caps, girders or other projecting members are to be placed against or over columns or walls, the concrete in the columns or walls shall have been permitted to set at least one (1) hour before the superstructure is placed, in order that the column or wall concrete may have opportunity to settle in the forms.

Concrete for the tunnel lining shall be placed continuously between any two (2) adjacent construction joints, in lifts not more than six feet (6′) deep, measured in a vertical direction. The topmost lift, having a width not to exceed eight feet (8′), shall not be placed until the adjoining concrete on both sides has been in place for at least seven (7) days, unless otherwise directed by the District Engineer.

All concrete shall be used while fresh and before it has taken an initial set. Concrete shall not be used after more than thirty (30) minutes have elapsed from the time water was first brought into contact with the cement.

11. Preparation of Forms and Surfaces.—All surfaces on or against which concrete is to be placed

shall be clean and free from debris. Immediately before placing concrete on any horizontal surface, except pavement subgrade or footings, the surface shall be covered with a layer at least one-half inch (½") thick of plastic mortar consisting of one (1) part of cement to two and one-half (2½) parts of sand by weight. The mortar shall be thoroughly worked with brooms or otherwise into all irregularities of surface, and concrete shall then be placed upon the fresh mortar.

All concrete surfaces upon or against which concrete is to be placed and to which new concrete is to adhere, shall be roughened and wetted before placing concrete or mortar upon or against them, in a manner satisfactory to the District Engineer. All laitance and all loose or defective surface material shall be removed by thorough chipping, brushing, and washing with clean water or cleaning with air under pressure, and no new concrete or mortar shall be placed until all excess material and water have been removed.

Water shall be removed from excavations before concrete is deposited. Water shall be prevented from entering any excavation while concrete is being placed or while it is setting, and shall be conducted away in such a manner that the concrete shall be placed in the dry. All drainage and pumping shall be at the expense of the Contractor. No concrete shall be deposited in or under water except with the written consent of the District Engineer and approval by him of the method to be used.

12. Conveying, Placing and Compacting Concrete.—Concrete, when mixed, shall be immediately conveyed to the forms and deposited without separation of its ingredients. The use of open chutes to convey and deposit concrete will not be permitted, except for distances of less than twenty feet (20′), and then only by special permission of the District Engineer. When open chutes are used, they must be of such cross-section and laid at such inclination that they will permit the flow of concrete of the consistencies herein specified, without the use of additional water to promote free flow. Only methods of transporting and placing which will deliver concrete of specified consistency without separation of its ingredients will be permitted.

Concrete shall not be permitted to fall from a height greater than six feet (6′), except through an enclosing pipe, in which case the height of fall shall not exceed twelve feet (12′). An enclosing pipe may be required by the District Engineer for placing concrete in columns, walls and deep footings.

Concrete shall be uniformly distributed during the process of depositing and in no case after depositing shall any portion be displaced in the forms more than three feet (3′) in a horizontal direction. Care must be taken not to displace the reinforcement, pipes, anchor bolts or other devices which are to be embedded in the concrete.

Concrete shall be deposited in uniform horizontal layers, not deeper than twelve inches (12″), care being taken to avoid inclined planes or inclined con-

struction joints. Construction joints must be built with square ends and level tops, except as otherwise directed by the District Engineer; in arch type structures, joints shall be made at right angles to the axis of the rib. Each layer shall either be placed before the previous layer shall have taken its initial set, or, if the previous layer has taken its initial set, the surface of the previous layer shall be prepared as herein specified for the preparation of hardened surfaces.

As the concrete is placed in the forms, it shall be thoroughly compacted by means of internal vibratory tampers of a type satisfactory to the District Engineer. The vibratory tamper shall be inserted directly into the concrete in the forms and shall not be attached to either the inside or the outside of the forms, nor shall it be attached to the reinforcing steel in any manner. The vibratory tamper shall have sufficient power to thoroughly compact all concrete of the consistencies herein specified.

The compaction shall be produced by inserting the tamper into the concrete directly for a period sufficient to produce the specified compaction. This insertion shall occur approximately every two and one-half feet (2½′), or where necessary to produce concrete of maximum density. Continuous attention shall be given to the working of concrete next to the forms and around reinforcing steel and embedded fixtures or inserts, in such a manner as to

produce a dense, homogeneous concrete mass, filling all corners and angles of the forms, thoroughly embedding the reinforcement and embedded fixtures, eliminating rock pockets and bringing a slight excess of mortar to the exposed surfaces of concrete during placement. The Contractor shall furnish and use at least one (1) vibratory tamper for every twenty-five (25) cubic yards of concrete placed per hour, and shall keep spare units in reserve. All concrete shall be completely compacted within fifteen (15) minutes after depositing the concrete in the forms. The furnishing and use of vibratory tampers shall be at the expense of the Contractor and no extra payment shall be made therefor.

Concrete for pavements will not be required to be compacted by the vibratory process above specified for all other concrete, but shall be compacted and the surface finished as specified in Section 16, "Portland Cement Concrete Pavement." Concrete for sidewalks, curbs and gutters will not be required to be compacted by the vibratory process above specified for all other concrete, but may be compacted by tamping as specified in sections 18 and 19.

In placing and compacting concrete, the Contractor shall use every means to secure a dense, impervious, homogeneous concrete, free from voids or pockets. The Contractor shall furnish, in addition to other concrete workers and vibratory tamper operators, sufficient laborers, acting under the direction of a foreman, whose sole duties during the

placing of concrete shall be the working, agitating and compacting of the deposited concrete with suitable tools of an approved type. Portions next to forms shall be cut in with spades or wedge-shaped tampers to secure a smooth external surface.

13. Construction Joints. — Construction joints necessitated by the temporary or diurnal cessation of placing concrete shall be located and constructed to the satisfaction of the District Engineer so that weakness in the finished structure will not result. Joints shall be keyed where required by the District Engineer. Where keys are required by the District Engineer, they shall be of sufficient area to transmit all shear on the section; in no case shall the area of keys be less than twenty-five per cent (25%) of the cross-sectional area of the section. Keys shall be formed by beveled strips or boards at right angles to the direction of shear and shall be at least one and one-half inches (1½") in depth.

Before placing new concrete at construction joints, the hardened surface against which concrete is to be placed shall be prepared as herein specified, and concrete shall be placed against such joints as herein specified.

Protection and Curing

14. Description.—All fresh concrete shall be carefully protected from the weather and from direct sunlight. Except as otherwise specified herein or permitted by the District Engineer, all concrete shall be cured by keeping the surface continuously

moist for at least twelve (12) days after placing. Floor slabs and roadway slabs shall be kept moist by means of damp burlap. Forms for all other concrete shall be kept wet for at least twenty-four (24) hours after placing concrete, and, when forms are removed, the concrete shall be kept sprinkled or kept protected by damp burlap hangings, except during the actual finishing of the surface, until the concrete is at least twelve (12) days old.

Except where otherwise directed, the surface of the concrete in the tunnel lining shall be protected by means of a waterproof coating satisfactory to the District Engineer. The coating shall consist of an approved asphaltic emulsion which will harden readily and quickly after it has been applied to the concrete surface. Such coating shall be applied immediately upon removal of forms, under pressure by means of a spray nozzle or atomizer in such a manner as to cover the entire surface with a uniform film and in sufficient quantity to thoroughly seal the surface of the concrete.

The Contractor shall protect all concrete from injury until it is thoroughly set, and all concrete surfaces from injury at all times. Working or walking on concrete shall not be permitted for at least twenty-four (24) hours after it has been deposited and compacted.

Finishing Concrete Surfaces

15. Description.—Forms on all vertical surfaces which do not act as supporting members shall be

removed as soon as practicable, but not sooner than forty-eight (48) hours after concrete is poured. The District Engineer shall be the sole judge as to which parts of the forms constitute supporting members.

Immediately after the forms have been removed, the Contractor shall remove all form bolts and ties to a depth of at least one inch (1") below the surface of the concrete. The holes shall then be carefully cleaned out and filled with a mortar containing one (1) part cement to two (2) parts of sand, and the surface shall be rubbed smooth. Care shall be taken to obtain a perfect bond with the concrete and to obtain the same color in the mortar as in the surrounding concrete.

Voids, air holes or rock pockets shall not be pointed up until inspected by the District Engineer. If, in his judgment, rock pockets or holes are of such an extent and character as to materially affect the strength of the concrete, or endanger the life of the steel reinforcement, he may declare the concrete defective and require the removal of the entire member or part, together with adjacent members, if such members act with the member or part containing the defective concrete. The whole shall then be recast with first class and acceptable concrete at the expense of the Contractor.

Where voids, air holes or rock pockets are not of an extent or character, in the opinion of the District Engineer, to endanger the strength or life of the structure, they shall be cleaned out and the

space refilled with concrete or cement mortar, held in place by forms, if necessary. The District Engineer may require that rock pockets be pressure grouted in the manner specified herein. All pockets containing voids shall be entirely removed until solid concrete is reached. The edges of the concrete shall be cut away square and true, and the old concrete saturated with water before refilling with the mortar.

All fins caused by form joints, and other projections, shall be removed.

All repairs and patches shall be rubbed down until smooth and flush with adjacent surfaces. Care shall be taken to obtain perfect bond and to obtain the same color in the patches as in the surrounding concrete.

After the completion of the above patching in a manner satisfactory to the District Engineer, all surfaces, except those poured against earth and surfaces such as pavement, sidewalk and others for which special surfacing methods are specified, shall be finished as follows: The entire surface shall be thoroughly rubbed with coarse carborundum stones and all unsightly blemishes and irregularities removed. If a mechanical finisher is used, a period of not less than four (4) days shall elapse between the pouring of the concrete and the start of the finishing. The operation shall be performed and continued until a smooth even surface of uniform texture and appearance is obtained, satisfactory to

the District Engineer. The surface shall then be washed with water to remove stains and loose particles.

Roadway surfaces, curbs and sidewalk shall be finished in accordance with specifications herein contained in, Section 16 "Portland Cement Concrete Pavement," Section 18 "Concrete Curbs and Gutters" and Section 19 "Cement Sidewalks," respectively, except that lampblack or other color admixtures shall not be used unless directed by the District Engineer.

Where special finishes are elsewhere provided, or called for, such finishes shall be applied only after all patching and rubbing down as herein set forth has been completed to the satisfaction of the District Engineer.

16. Grouting.—Where deemed necessary by the District Engineer, the seams and cavities in rock adjacent to the tunnel lining shall be grouted by a pressure method, satisfactory to the District Engineer. Grout holes shall be drilled to the depth directed by the District Engineer, and shall be not less than one inch (1") in diameter at the bottom. Suitable grouting connections in the form of two inch (2") iron pipe, eighteen inches (18") to twenty-four inches (24") long, shall then be installed, anchored, and packed to prevent leakage around the connection. If required by the District Engineer, each grout hole shall be tested prior to grouting by having first applied to it clear water

under pressure. Each grout hole and grout connection shall have forced into it under a pressure as directed by the District Engineer, but not exceeding one hundred and fifty (150) pounds per square inch, a grout composed of cement and water, or cement, sand and water, in proportions determined by the District Engineer. Sand for pressure grouting shall meet all requirements for concrete sand specified herein except as to grading, which shall be as follows:

One hundred per cent (100%) shall pass a No. 8 sieve, and twenty per cent (20%) to thirty-five per cent (35%) shall pass a No. 50 sieve.

Cement for pressure grouting shall conform to the requirements herein specified for Portland Cement.

The apparatus for mixing and placing grout shall be of a pumping type approved by the District Engineer and capable of effectively and continuously mixing and stirring the grout and forcing it into the holes at any desired pressure up to one hundred and fifty (150) pounds per square inch. Grouting shall not be stopped in any hole until directed by the District Engineer. After the grouting of the hole is finished, the pressure shall be maintained by means of a stop-cock or other suitable device until the grout has set sufficiently so that it will be retained in the hole.

If ground is supported by steel ribs and liners, spaces behind the steel shall be grouted prior to

placing the tunnel lining. Grout as herein specified for grouting rock shall be forced into the space behind the steel, as directed by the District Engineer, under pressure not exceeding twenty-five (25) pounds per square inch.

Any unfilled space above the crown of the tunnel arch which remains after concrete is placed, or any space behind the tunnel lining which cannot be filled with concrete as intended shall be grouted by a pressure method satisfactory to the District Engineer, and such grouting shall be done at such times after placing concrete as the District Engineer may direct. Grout and grout materials, and methods of mixing and placing, shall be as herein specified for grouting rock.

For the purpose of introducing grout through the arch, a grout pipe system consisting of one inch (1") risers at intervals of approximately ten feet (10') shall be installed prior to the time the concrete is placed. The upper end of such risers shall be wrapped with burlap and wire in such a manner that concrete will not enter the risers during placement, but that grout will be forced from the riser into the space above the arch when pressure is applied. After grouting is completed, and the grout has thoroughly set, the one inch (1") pipe risers shall be removed to a depth of at least one inch (1") back of the concrete surface, and the space thus formed filled with 1:2½ mortar, carefully troweled to a smooth finish with the tunnel lining.

Full compensation for grouting shall be considered as included in the price paid for "Tunnel Construction" as specified in Section 32 hereof, and no additional allowance will be made therefor.

Contraction Joints

17. Description. — Expansion and contraction joints are to be constructed as shown on the plans or determined by the District Engineer. Joints to be filled with asphalt shall be carefully cleaned out and filled with asphalt having a penetration of from one hundred and seventy-five (175) to two hundred and twenty-five (225). Full compensation for constructing and filling expansion and contraction joints, as herein specified, shall be considered as included in the prices paid per cubic yard for concrete in structures, and no additional allowance will be made therefor.

Drains and Weep Holes

18. Description.—Drains back of and weep holes through walls and tunnel lining shall be provided as shown on the plans or as directed by the District Engineer. Drains shall be constructed in accordance with specifications in Section 23, "Underdrains," except as otherwise shown on the plans or directed by the District Engineer.

For all walls, the price paid per cubic yard of concrete in place shall include full compensation for the furnishing and placing of all weep holes and drains as above specified. For the tunnel, the price

paid per lineal foot for "Tunnel Construction," Section 32 shall include full compensation for the furnishing and placing of all weep holes and drains as above specified.

Lighting Conduit

19. Description.—Conduit for lighting equipment shall be galvanized or sherardized both inside and outside and shall be of the size called for on the plans. At expansion joints, where the conduit passes through diaphrams or brackets, a zinc sleeve shall be placed about the conduit and oiled or otherwise treated to prevent adhesion to the concrete. The length of conduit between junction boxes shall not exceed seventy feet (70'); wooden plugs shall be inserted in all open ends of conduits to prevent plugging.

Full compensation for furnishing and placing conduits with all necessary fittings and incidental work connected therewith shall be considered as included in the prices paid for other items of work and no additional allowance will be made therefor.

Concrete Parapets

20. Description.—Special care shall be taken to construct parapets true to line and grade. Where the top of the parapet is to be a vertical curve, no broken lines shall appear. Panels shall be straight and true. Parapet forms shall be of selected matched lumber and framing shall conform to best cabinet or pattern work practice. The inside of

forms shall be oiled or painted with a coat of white shellac as the District Engineer may direct. Perceptible breaks in the lines or parapets will be sufficient cause for removal and rebuilding at the Contractor's expense.

21. Payment.—Actual concrete in the finished structure, as shown on the plans, with such modifications as the District Engineer has directed in writing, will be paid for.

The price paid per cubic yard for "Concrete Structures" shall include full compensation for furnishing, placing and removing forms and falsework, furnishing, placing, finishing and curing concrete, furnishing and placing expansion details, and all work necessary or incidental thereto. No allowance will be made for cofferdams, pumps, labor, or other items which may be necessary on account of water.

Tunnel lining will be paid for as hereinafter provided, and no other payment for separate units thereof will be made.

Reinforcing Steel will be paid for as provided under Section 14, "Reinforcing Steel."

No measurement will be made or separate payment allowed for "Concrete Structures" where such concrete is specifically included as part of structures or other units of work and paid for as such, as otherwise provided herein.

SECTION 17. PENETRATION OIL MACADAM PAVEMENT

1. Description.—A Penetration Oil Macadam Pavement shall be constructed at locations and of

widths shown on the plans, and as directed by the District Engineer. The pavement shall consist of two (2) courses, namely, a waterbound base course consisting of rock and screenings, compacted by rolling and watering and of a depth not less than six inches (6") after final compacting, and a penetration oil macadam top course two inches (2") in thickness after compacting, consisting of rock and screenings compacted by rolling and bound and sealed by applications of hot road oil or cold emulsified road oil, as hereinafter specified.

2. Waterbound Base Course: (a) Materials.—The broken stone for the waterbound base course shall be crushed from sound ledge rock or boulders, of such character that it will compact and thoroughly lock under watering and rolling so as to make a stable, well keyed base. The rock shall be free from clay, loam, adobe, vegetable matter or other deleterious material. It shall have a coefficient of wear of not less than eight (8) when tested in the manner hereinafter set forth for "Abrasion Test of Rock." It shall be of such size that it will all pass a screen having circular openings three inches (3") in diameter and at least ninety-five per cent (95%) will pass a screen having circular openings two and one-half inches (2½") in diameter; not more than seventy per cent (70%) will pass a screen having circular openings two inches (2") in diameter and at least ninety-five per cent (95%) will be retained on a screen having circular openings one and one-quarter inches (1¼") in diameter.

Screenings shall be that portion of the crusher run, including stone dust, which passes a screen having circular openings three-quarters inch (¾") in diameter. Screenings shall be obtained from rock of the same qualities as hereinabove specified for broken stone.

(b) Constructing Base.—The broken stone shall be placed upon a subgrade prepared as hereinbefore specified, and between side forms or headerboards set to line and grade for the edges of the finished pavement. If curbs and gutters are to be placed they shall be constructed prior to the placing of the rock, and headerboards shall be omitted.

The broken stone shall be placed in two courses, each course not to exceed four inches (4") in thickness, measured before rolling. Work on each course shall be handled in a similar manner.

The broken stone shall be spread in a layer of uniform thickness, using either spreading boxes, self-spreading vehicles, or by spreading from the vehicle by hand. Dumping in piles upon the subgrade will not be permitted. The course shall be rolled with a self-propelled roller weighing at least three hundred (300) pounds to the linear inch width of tread, and rolling shall be done at the sides of the roadway first, gradually working toward the center, until the entire surface is compact and the broken stone thoroughly locked and keyed. Screenings shall then be spread in thin layers and each layer rolled dry until no more screenings can be forced into the voids. The surface shall then be

inkled until the stone is thoroughly wet but not ficiently to saturate the subgrade, and again led. Excess screenings shall be scattered by light eeping, additional screenings shall be added as l where voids develop, rolling and sweeping shall continued until the entire surface is completely ed and the course is firm and unyielding. The face shall be swept to remove all surplus screen- s to slightly below the surface of the compacted k.

The succeeding course shall be constructed in the ntical manner and the finished water-bound base rse shall be firm and hard, and true to grade and tion. If the surface varies at any place more n one-quarter inch (¼") from the lower edge of en foot (10') straight-edge it shall again be trued and rerolled. This process shall be repeated il the surface conforms to the above test for uracy.

. Penetration Oil Macadam Top Course.—Using road oil.

a) Materials—Rock and Stone.—The broken ne for the penetration oil macadam top course ll be crushed from sound ledge rock or boulders, l shall be sound, hard, tough and have irregular avage. It shall be of such a character that it will roughly compact and lock when rolled. It shall free from clay, loam, adobe, vegetable matter or er deleterious material. It shall have a coeffi- nt of wear of not less than ten (10) when tested the manner hereinafter set forth for "Abrasion

Test of Rock." The large size rock shall be such that all will pass a screen having circular openings two and one-half inches (2½") in diameter; not more than seventy per cent (70%) shall pass a screen having circular openings two inches (2") in diameter and all shall be retained on a screen having circular openings one and one-quarter inches (1¼") in diameter.

The intermediate size rock shall be of the same quality as the broken stone and shall be of such size that at least ninety-five per cent (95%) will pass a screen having circular openings one and one-quarter inches (1¼") in diameter and at least ninety-five per cent (95%) will be retained on a screen having circular openings three-quarters inch (¾") in diameter.

Stone chips shall be crushed from broken stone of the quality above described and shall be of such size that all will pass a screen having circular openings three-quarters inch (¾") in diameter and be retained on a screen having circular openings one-quarter inch (¼") in diameter. Clean, hard, durable pea gravel passing the same screen tests may be used in place of stone chips.

(b) Materials—Road Oil.—The road oil shall be made from an asphaltic base oil; it shall be either a naturally homogeneous oil or a homogeneous residue from oil. It shall not have been distilled at a temperature high enough to injure by burning or to produce flecks of carbonaceous matter, and upon

arrival at the work shall show no signs of separation into lighter and heavier components.

Oil must be delivered at the point required for spraying at a temperature of not less than three hundred and fifty degrees (350°) F. nor more than four hundred and thirty-five degrees (435°) F.

In determining the quantity of oil delivered the correction for expansion by heat shall be made as follows: From the measured volume of oil received at any temperature above sixty degrees (60°) F. an amount equivalent to four-tenths (4/10) of one per cent (1%) for every ten degrees (10°) above said sixty degrees (60°) F. shall be subtracted as the correction for expansion by heat. For the purpose of measuring the oil a temperature of sixty degrees (60°) F. shall be deemed normal temperature.

The oil shall conform to the following tests:

1. Penetration.—The oil shall contain a minimum of ninety-four per cent (94%) of asphaltic residue of eighty (80) penetration (Test D 243-26T A.S.T.M.).

2. Flash Point.—The flash point by the Cleveland Open Cup method shall be not less than four hundred twenty-five degrees (425°) F. (Test D 92 A.S.T.M.).

3. Volatibility.—The loss on heating at three hundred and twenty-five degrees (325°) F. for five hours shall not be more than three per cent (3%). The residue at seventy-seven degrees (77°) F. shall have a penetration of not less than sixty (60); (Test D-6 A.S.T.M.).

4. Solubility.—The bitumen shall be not less than ninety-nine per cent (99%) soluble in carbon bisulphide (Test D-4 A.S.T.M.). The solubility in carbon tetrachloride shall be not less than ninety-nine and five-tenth per cent (99.5%) of the amount soluble in carbon bisulphide (Test D-165 A.S.T.M.).

5. The oil shall contain not more than five-tenths per cent (0.5%) of water nor more than one per cent (1%) of sediment (Tests D-95 and D-96 A.S.T.M.).

(c) Constructing Pavement.—Upon the water-bound base course, thoroughly cleaned, broomed and dry, shall be laid a layer of the broken stone of the large size to a uniform depth sufficient so that when the intermediate rock and rock chips have been added and the whole compacted, the finished surface will be true to grade and cross-section. The broken stone shall be placed by means of spreading boxes or other devices, approved by the District Engineer. It shall then be thoroughly rolled until it is firm, uniform, to the required cross-section, and the stone interlocked and thoroughly keyed.

The hot oil shall then be applied uniformly over the surface at the rate of seven-eighths (⅞) gallon per square yard of street surface covered. The oil shall be applied under a pressure of at least thirty (30) pounds per square inch. Suitable appliances shall be used which shall be capable of spraying the pavement in strips at least eight feet (8′) wide; and shall, in addition to having the necessary nozzles for spraying such strips, be equipped with a hose

and attached spraying nozzle for the purpose of spraying portions of the pavement inaccessible to the regular oiling nozzles.

Immediately after applying the oil a layer of intermediate size rock shall be spread over the surface in sufficient quantity to permit rolling without adhesion of the oil to the roller. The surface shall then be immediately rolled, broomed, and all lumps broken up and distributed. The rolling shall continue with the application of stone chips and brooming, as required, until the surface is thoroughly compacted and bonded, true to section and grade.

The hot oil shall then be uniformly applied over the surface at the rate of three-eighths (⅜) gallon to the square yard of street surface covered, then covered with stone chips and rolled, with stone chips added as necessary until the surface is uniform and firm.

Rolling shall be done with a self-propelled roller, weighing at least three hundred (300) pounds to the linear inch width of tread.

All rolling shall progress from the sides of the roadway gradually toward the center.

All oiling shall be done while the atmospheric temperature is above sixty-five degrees (65°) F. or when the sun is shining. No oiling will be permitted when the layer of broken stone or the stone chips are wet.

Stone chips and intermediate size rock shall be spread by mechanical spreaders, or shall be depos-

ited along the sides of the street in piles, and distributed and placed from there with shovels. Stone chips and rock shall not be dumped on the top course in piles.

No traffic shall be permitted upon the roadway between the time of spreading the broken stone and the time of completion of the last oiling and rolling, excepting the oil spraying appliance during its operation.

4. Penetration Oil Macadam, Top Course.—Using Emulsified Road Oil:

(a) Materials—Rock and Stone.—The broken stone for the top course shall be crushed from sound ledge rock or boulders, and shall be sound, hard, tough and have irregular cleavage. It shall be of such a character that it will thoroughly compact and lock when rolled. It shall be free from clay, loam, adobe, vegetable matter or other deleterious material. It shall have a coefficient of wear of not less than ten (10) when tested in the manner hereinafter set forth for "Abrasion Test of Rock." It shall be of such size that all will pass a screen having circular openings two and one-half inches (2½") in diameter; not more than seventy per cent (70%) shall pass a screen having circular openings two inches (2") in diameter, and all shall be retained on a screen having circular openings one and one-quarter inches (1¼") in diameter.

Screenings used for key rock shall be of the same quality as broken stone and shall be of such size that not less than ninety per cent (90%) will pass

a screen having circular openings one inch (1") in diameter; not more than seventy-five per cent (75%) will pass a screen having circular openings three-quarters inch (¾") in diameter and not more than five per cent (5%) will pass a ten (10) mesh sieve.

Rock chips will be crushed from rock of the same quality as the broken stone, or clean, hard, uncrushed pea gravel may be used in place of crushed rock. Rock chips shall be of such a size that not less than ninety-five per cent (95%) will pass a screen having circular openings three-eighths inch (⅜") in diameter, and not more than five per cent (5%) will pass a ten (10) mesh sieve.

(b) Materials — Emulsified Road Oil. — The Emulsified Road Oil shall consist of petroleum asphalt, slightly alkaline water and an emulsifying agent. It shall be uniformly emulsified and shall break rapidly when applied to the rock. It shall be of a consistency suitable for application through a pressure distributor without heating, and, when tested in accordance with the methods herein described, shall conform to the following requirements:

Specific Gravity 25° C. (77° F.)_____
_____Not less than 1.00
Viscosity, Saybolt-Furol 60 CC at 25° (77° F.)
_____Not more than 45 seconds
Loss at 163° C. (325° F.) 3 hrs. 200 grams___
_____Not more than 45%
Petroleum Asphalt_____Not more than 55%

Total amount of all alkali and saponifiable substances, including Petroleum acids_____
_____Not more than 1%
Settlement 10 days_____Not more than 3%
Free asphalt, retained on forty (40) mesh sieve
_____Not more than 0.05 of 1%

The petroleum asphalt contained in the emulsion shall conform to the following requirements:

Percentage 80 penetration asphalt_95% to 98%
Solubility in carbon tetrachloride_____
_____Not less than 98.5%
Solubility in carbon disulphide_____
_____Not less than 99%

The methods of testing Emulsified Road Oil shall be as follows:

Specific Gravity—A. S. T. M. Standard D 70-27.

Viscosity—A. S. T. M. Standard D 88-30.

Loss at 163° C.—A. S. T. M. Standard D-6-30, except that determination of loss shall be the average of three (3) gram samples, heated for three (3) hours in a porcelain evaporating dish six inches (6") in diameter and about two inches (2") in depth.

Amount of Saponifiable Substances—Including petroleum acids, soaps, fatty or resinous acids and sulphonated oils in accordance with Test Method 37 E, as described on page 753 of the Third Edition of "Asphalt and Allied Substances" by Abraham.

Settlement.—An average sample of one (1) gallon or more shall be taken from each lot or shipment and tested for stability. Samples shall be shipped in clean, air-tight containers. A determination of the amount of residue, based on the average of two (2) tests, shall be made on this sample, in accordance with the test for "Loss at 163° C."

Two (2) samples of five hundred (500) cubic centimeters each from the average sample shall be placed in air-tight, cylindrical glass containers with an inside diameter of four (4) to five (5) centimeters and allowed to stand for ten (10) days at laboratory atmosphere temperature. Fifty (50) grams shall then be siphoned from the top of each sample, care being taken not to disturb the remainder of the content. Approximately four hundred (400) cubic centimeters of the emulsion shall then be removed with the siphon and finally a fifty (50) gram sample shall be taken from the bottom of each container. The samples taken from the top and from the bottom of the container shall then be tested in the same manner as the original sample.

Neither the average per cent of the residue from the top samples nor the average per cent of the residue from the bottom samples shall differ from the average per cent of residue obtained in the test on the original sample by more than three per cent (3%).

Free Asphalt—Retained on Forty (40) Mesh Sieve.—The Standard forty (40) mesh sieve shall consist of a copper cylinder one and one-half inches (1½") in diameter and two inches (2") high, to the

bottom of which is soldered a copper standard forty (40) mesh wire screen. The test shall be carried out as follows:

The lower half of the weighed sieve shall be dipped into distilled water and the excess water drained off. The emulsion to be tested shall then be poured through the sieve until no more will go through or until eight hundred (800) to one thousand (1,000) CC have passed through. The emulsion adhering to the sieve shall be immediately washed off with distilled water until the washings come through clear. The sieve and free asphalt thereon shall then be dried for one and one-half hours at a temperature of one hundred and fifteen degrees (115°) Centigrade. The percentage of free asphalt is then determined from the weight of the emulsion passed through the sieve and the weight of the asphalt retained on the sieve. The small amount of the emulsion washed off from the sieve will be neglected.

The methods of testing the Petroleum Asphalt contained in the Emulsion shall be as follows:

Penetration ..... A.S.T.M Standard D-5-25

Solubility Carbon Disulphide ..... A.S.T.M. Standard D-4-27

Loss at 163° C ..... A.S.T.M. Standard D-6-30

Flash Point (Open Cup) ..... A.S.T.M Standard D-92-24

Percentage 80 Penetration Asphalt ..... A.S.T.M. Standard D 243-26T

(c) Constructing Pavement.—Upon the water-bound base course, thoroughly cleaned and broomed, shall be spread a layer of the broken stone to a uniform depth sufficient so that when the key rock and screenings have been added and the whole has been compacted the finished surface will be true to grade and cross-section. The broken stone shall be placed by means of spreading boxes or devices approved by the District Engineer. It shall then be lightly rolled, after which all high or low spots shall be trued up by removing or adding stone as required. It shall then be rolled again and trued up where necessary. These operations shall be repeated until a uniform surface free from high or low spots is secured, and the broken stone is locked and keyed together. Rolling shall be done with a self-propelled roller weighing at least three hundred (300) pounds to the linear inch width of tread.

The rock chips as specified shall then be evenly spread mechanically with an approved spreading device or broadcast with a sideswing of the shovel and then lightly rolled and broomed until worked down between the rock. Filling shall extend to within one inch (1") of the surface.

The Emulsified Road Oil shall then be uniformly applied over the surface at the rate of five-eighths (⅝) gallon per square yard of street surface covered. The oil shall be applied under a pressure of at least thirty (30) pounds per square inch. Suitable appliances shall be used which shall be capable of spraying the pavement in strips at least eight

feet (8') wide, and shall, in addition to having the necessary nozzles for spraying such strips, be equipped with a hose and attached spraying nozzle for the purpose of spraying portions of the pavement inaccessible to the regular oiling nozzles.

After the Emulsified Road Oil shall have been completely broken and shall have adhered to the rock, the surface shall be rolled once over. Screenings shall then be spread uniformly in sufficient quantity to completely fill the remaining voids. The screenings shall be broomed and dragged to aid in uniform distribution and shall then be rolled. Additional screenings, if required, shall be applied and rolling, brooming and dragging shall continue until the voids in the coarse rock are filled and the key rock is thoroughly locked in the surface.

The second application of emulsified road oil shall then be made at the rate of one-half (½) gallon per square yard to street surface covered. After the emulsion in this application has broken and adhered to the stone the pavement shall be rolled once over and shall then be covered with rock chips applied at the rate of about fifteen (15) pounds per square yard of pavement surface. The rock chips shall then be broomed and dragged to every portion of the surface to obtain uniform distribution and complete filling of the voids. Rolling shall continue during the brooming process and until the pavement is thoroughly and uniformly compacted.

At least twelve (12) hours shall elapse between the first and second applications of the emulsified road oil.

A seal coat shall be applied in not less than twenty-four (24) hours nor more than seven (7) days after the completion of the work previously set forth. All loose material and loose rock chips remaining on the surface shall be removed by brooming. Emulsified Road Oil shall be applied to the surface at the rate of three-eighths (3/8) galion per square yard of street surface. The surface shall then be covered with a light spread of rock chips, ten (10) to twelve (12) pounds to the square yard of surface being used. The cover material shall be broomed to secure even distribution, and then rolled and broomed until thoroughly compacted.

The total time of actual rolling shall be not less than eight (8) hours for each one hundred (100) tons combined weight of coarse rock, screenings and rock chips used in the pavement.

The pavement may be opened to traffic twenty-four (24) hours after completion.

5. Abrasion Test for Rock.—The coefficient of wear for rock shall be obtained as follows:

Rock shall be tested in a Standard Deval rattler according to the following method:

At least thirty (30) pounds of coarse, crushed rock, free from any fragments showing rounded or water worn surfaces shall be available for the test. The rock to be tested shall be broken into pieces as nearly uniform in size as possible and a test sample

shall consist of not less than forty-nine (49) nor more than fifty-one (51) pieces. The total weight of crushed rock to be placed in each cylinder shall be five (5) kilograms (eleven (11) pounds).

All test pieces shall be washed and thoroughly dried before weighing. Ten thousand (10,000) revolutions at the rate of between thirty (30) and thirty-three (33) to the minute shall constitute a test. Only the percentage of material worn off which will pass through a No. 16 sieve shall be considered in determining the amount of wear.

The wear shall be expressed by a coefficient known as the coefficient of wear which shall be obtained by the formula $C = \frac{400}{W}$ where "C" is the coefficient and "W" the weight in grams of the detritus passing the No. 16 sieve per kilogram of rock used.

6. Measurement.—Measurement of Penetration Oil Macadam Pavement shall be by the square feet of surface of actual pavement constructed in place, as shown on the plans or as directed by the District Engineer. No allowance will be made for excess thicknesses or material or work which may have been necessary for any reason whatsoever, to complete the pavement to the grade and section required.

7. Payment.—The price paid per square foot for Penetration Oil Macadam Pavement shall include full compensation for preparing the subgrade, furnishing and setting headerboards and side forms, constructing water-bound base course and Pene-

tration Oil Macadam Top Course, with either hot road oil or Emulsified Road Oil, as specified, together with the furnishing of all labor, materials, tools and equipment and the performance of all work necessary or incidental to constructing the finished pavement, complete in place, as specified.

SECTION 32. TUNNEL CONSTRUCTION

1. General Description.—Highway tunnels shall be constructed at the locations and in accordance with the details as shown on the plans.

The tunnels shall be excavated to the required sections and lined with Portland Cement Concrete throughout their lengths. Accessory structures and facilities, such as ventilation structures and ducts, cross adits, portal structures, lighting and illumination systems, water pipes, hydrants and accessories, ducts, conduits and electrical systems, signals, traffic control systems, sidewalks, railings, pavement, drainage systems and structures, and all incidental structures, facilities and equipment shall be provided and constructed in accordance with the plans and details.

2. Materials.—All materials and workmanship shall conform to the specifications hereinafter set forth in this section, provided that whenever materials, work or methods of construction are not set forth in detail herein, such materials, work or methods of construction shall conform to the requirements elsewhere set forth or provided for or intended by these specifications, and that in all

cases such material, work or methods of construction shall be the best of their kind or quality and in accordance with the highest standard of modern construction practice, and the omission of any specific detail or requirement herein shall not be construed as permitting the use of materials or methods inferior in quality or type to the general intent of these specifications.

3. Safety Rules.—The Contractor shall provide himself with copies of "Tunnel Safety Rules" and "General Construction Safety Orders Relating to the Storage and Use of Explosives," together with all revisions and amendments thereto, as required by the Industrial Accident Commission of the State of California and keep copies of these at the site of the work at all times. He shall consult with officials of the Industrial Accident Commission and inform himself of any and all conditions which they may require, whether set forth in the published rules or specially provided for on this work. He shall thoroughly familiarize himself with the provisions of said rules and all regulations of said Commission and govern all his operations by the requirements in all particulars where the same are applicable. He shall see to it that all superintendents, foremen and other employees having responsibility for the various phases of the tunnel work are likewise familiar with the provisions referred to above, and that all work is conducted in accordance therewith. The requirements concerning ventilation, general safety precautions, transportation,

roof inspection, timbering, electrical installations and use of explosives are of particular importance.

Representatives of the U. S. Bureau of Mines and of the Industrial Accident Commission of the State of California shall be afforded free access to the work at all times and be given every facility for inspecting methods, equipment and familiarity of workmen with the various safety rules and requirements.

All Federal and State regulations for such work or parts thereof and regulations of Counties and Municipalities having local jurisdiction shall be strictly adhered to, and authorized officials representing the Federal or State governments or Counties or Municipalities having jurisdiction shall be given every facility for inspection and proper enforcement of rules, provisions, regulations and ordinances which may apply to the conduct of the work. The Contractor shall be responsible during the entire progress of the work for the proper enforcement of all such requirements and shall assume all liabilities which may occur due to accidents of any kind or nature. The fact that no apparent violation of rules or regulations has occurred shall not serve to relieve the Contractor of his full liability or responsibility in case of accident or damage to persons, employees, or to any part of the work.

Provisions shall be made by the Contractor for a supply of fresh air sufficient for the safety, comfort and efficiency of all persons engaged in the tun-

nel construction, at all times in all portions of the work. Provision shall be made for the quick removal of gases resulting from blasting and frequent tests shall be made for harmful or explosive gases emanating from the rock structure.

Should compliance with safety rules and regulations require special equipment the Contractor shall at all times keep on hand on the work enough of such special equipment to supply, in addition to his own requirements, complete equipment for at least three men, for the use of the District Engineer and his assistants in inspections of the work or in giving lines and grades, or as the District Engineer may direct.

4. Geological Data.—A preliminary report on the geological structures through which the tunnel will pass is on file in the office of the District Engineer. This report is available for inspection by prospective bidders at the office of the District Engineer. The Board of Directors of the District and the District Engineer do not guarantee in any respect the accuracy of this report or the findings or recommendations contained therein. The fact that prospective bidders are permitted to inspect this report shall not in any respect relieve prospective bidders of their responsibility to make their own investigations as to the materials which may be encountered or the geological structures, independent and separate from those made by the District, and the Contractor shall have no claim whatsoever for damages, unexpected costs, difficul-

ties, or for the alteration or voiding of the contract, should materials encountered vary in any respect from those indicated in the preliminary report referred to.

5. Excavation of Tunnels: (a) Excavation.—The Contractor shall use approved modern methods in driving and excavating the tunnels, such as will assure a good rate of progress. He shall furnish and install all timbering, lagging and other supports necessary to provide ample security against falling earth or rock, caving or other movements of the roof, sides or bottom of the excavation. He shall provide for the proper drainage and disposal of water encountered in the excavation.

Before performing any excavation in the tunnel the Contractor shall submit to the District Engineer his proposed method of procedure, giving in detail the various operations leading up to and including the final completed lined section, and no such work shall be performed until the approval by the District Engineer of the procedure has been obtained. Such approval by the District Engineer shall not, however, in any way relieve the Contractor of his responsibility for the failure of the method, or for lack of proper progress in his operations.

The Contractor shall inspect the drift or heading which has been driven by the District at the site of the work, and shall take all necessary steps to prevent caving or failure of timbers in this drift until it is incorporated in the final construction, and shall retimber the same, if, in his judgment,

such work is necessary. He shall assume full responsibility for the maintenance of this drift from the time his contract is approved and in effect, and the provisions of these specifications shall apply in all respects to the proper maintenance and completion of this drift and the construction of the lining and other structures, as though the existing drift had been constructed by the Contractor as a part of his contract. Any alterations or work which may be necessary to make this drift conform to these specifications shall be performed by the Contractor at his own expense and as a part of the work set forth in this contract.

Material excavated from the tunnel section shall be used to make embankments as provided under Section 8, "Grading" of these specifications, and all operations in placing such material in fills or embankments shall conform thereto; provided, however, that any material which in the opinion of the District Engineer is unsuitable for use in embankments shall be disposed of at the expense of the Contractor in a manner satisfactory to the District Engineer; and provided further that material in excess of that required for embankments and for which, in the opinion of the District Engineer, there is no practicable use on any part of the work, shall also be disposed of by the Contractor at his own expense and in a manner satisfactory to the District Engineer.

Material excavated from the tunnel section and required to be used in the making of embankments

will be used only on the highway west of the West Portal, and it is contemplated that all tunnel excavation which is suitable for the purpose will be used to make necessary embankments on this section of the highway. No provision has been made for using any such material on the Northeast highway approach and none shall be placed thereon unless the District Engineer so directs.

Where excavated material is used for embankments on any part of the work the Contractor will be allowed "Overhaul" as provided in Section 8, "Grading" of these specifications, with the following modifications thereof.

No payment for "Overhaul" will be allowed for the distance material is transported within the limits of the tunnels, but haul will be measured from the Station of the Portal of the Tunnels, as shown on the plans, and the provisions for free haul of five hundred feet (500′) shall apply to any distances material is required to be transported beyond such Portal Station. Overhaul will not be paid where unsuitable or surplus material is required to be disposed of by the Contractor at his own expense.

(b) Overbreak.—Excavation shall be of sufficient size to allow for the proper bracing, timbering, construction of lining and forms, and drainage. Extreme care shall be taken in making excavation for the tunnel that the minimum of earth or rock shall be removed or allowed to cave or settle outside of the outer periphery of the concrete structure which forms the tunnel lining. However, should the

Contractor damage or shatter, in any way, materials lying outside of the neat lines of the concrete structure, or should it become necessary in order to properly support the excavated sections that excess volumes be excavated to permit proper timbering or other supports, the Contractor shall remove the rock or materials so damaged or excavated, and the space between the neat lines of the concrete structure, and the lines of actual excavation shall be filled with Portland Cement Concrete mixed in the same proportion and placed at the same time as the concrete in the neat structure, or, when permitted by the District Engineer, dry packed and grouted as hereinafter provided. Where timber is employed for tunnel timbering it shall be removed before any concrete is placed, and any spaces outside the neat lines of the concrete structure caused by such removal shall be filled with concrete as above provided. In the event that it is found impracticable, in the opinion of the District Engineer, to remove timbering or portions thereof, such timbering may be allowed to remain permanently in place, but in no case shall such timber so remaining be allowed to project into the neat lines of the concrete structure. Where timber is permitted to remain, all spaces outside of the neat lines of the concrete structure shall be filled with concrete mixed in the same proportions and placed at the same time as the concrete in the neat structure. If structural steel shapes are used for tunnel sets they may be allowed to remain permanently in place provided

that they do not project into the concrete more than four inches (4″) beyond said neat lines of the concrete structure.

Any excavation which, due to requirements of timbering or the nature of the material, or caused by overbreakage, extends more than one foot (1′) from the outside neat lines of the concrete structure, may, at the option of the Contractor, in lieu of replacing with the Structural Concrete specified, be filled to within one foot (1′) of said neat lines of concrete with spalls, boulders, or other material approved by the District Engineer and grouted in with a cement grout consisting of one (1) part of cement to three (3) parts of fine aggregate, and applied as directed by the District Engineer and to his satisfaction. Such construction, however, shall not be permitted within the one foot (1′) space outside of the neat lines of the concrete structure, and such space shall be filled only with Portland Cement Concrete mixed in the same proportion and placed at the same time as the structural concrete, provided that if steel liner plates and ribs are used and are allowed by the District Engineer to remain in place, the spaces back of plates and ribs shall be dry packed and grouted as provided, but any space between the plates and the neat lines of the structure shall be filled with concrete at the same time as the neat structure.

Wherever reference is made to "neat lines of the concrete structure" it is hereby specified that the neat lines so referred to are the outside lines of the

structural concrete lining, as shown on the plans.

(c) Explosives.—The Contractor shall submit to the District Engineer, and receive his approval of any and all plans for the drilling and shooting of holes, storage and use of explosives, together with time schedules when blasting will be carried on. Extreme care will be required in the use of explosives that the rock or earth lining will not be shattered and that no damage will be done to either temporary or permanent structures which may have been constructed. The District Engineer may, at any time when in his judgment it is necessary, limit the size and strength of explosive charges, or prohibit the use of explosives entirely. The approval by the District Engineer of any method used, quantity or strength of charges, shall not in any way relieve the Contractor of his responsibility for proper execution of the work and the proper use of explosives.

(d) Drainage.—Whenever sand or other granular or loose material is encountered care shall be taken to drain carefully all material to be excavated before such material is removed. Extreme care shall be taken to avoid the removal of any solid material in so draining the excavation. Drains shall be so arranged as to permit inspection of drainage water and avoid the carrying off of any solid material.

Water which may be encountered in the course of the work shall be removed by proper drainage methods, and the Contractor shall provide at his

own expense all pipe, pumps, drains and drainage structures as may be necessary to keep the excavations free from water. He shall dispose of drainage water in such a way as to avoid damage to other parts of the work or to public or private property, and shall save the District harmless from any and all loss or damage therefor at his own cost and expense. All methods adopted by the Contractor shall be subject to the approval of the District Engineer.

(e) Timbering.—The term "Timbering" as used herein shall include all wooden pieces or structures used to support the earth or rock adjacent to any excavation. The Contractor shall furnish, put in place, construct and maintain all timbering necessary to support the sides and top of the excavations, preliminary to the placing of the concrete lining. The timbering shall be so constructed as to prevent any movement or caving which might in any way injure the proposed structures or endanger any person. Wherever, in the opinion of the District Engineer, sufficient or proper timbering has not been provided, the Contractor shall furnish additional timbering; but neither compliance with the District Engineer's instructions nor failure of the District Engineer to give such instructions shall relieve or release the Contractor from his responsibility for the sufficiency of the timbering.

It is the general intent of these specifications that all timbering shall be removed from the excavation before concrete is placed. Should conditions arise

where, in the opinion of the District Engineer, it is impracticable to remove certain timbers or structures, such timbering, upon the written consent of the District Engineer, may be permitted to remain, subject, however, to the provisions herein contained in respect to clearances outside of the concrete lining. Timbers allowed to remain in place shall in no case project into the neat lines of the concrete structure, and, in the event that it is apparent, during the process of excavation and timbering, that the safety of the excavation will require timbering to remain in place, the Contractor shall enlarge the excavated section to the extent necessary to set the timbers outside of future concrete lines; timbers found to project within the concrete lines shall be removed and reset before concreting. Permission to allow timbers to remain will not be granted for any other reason than to secure the safety of the structure.

Where timber is allowed to remain it shall be keyed or wedged firmly against the adjacent rock or earth, and shall be securely fastened, spiked or bolted so that no movement, shifting or settlement shall occur. All joints shall have full and firm bearing, timber to timber, without shimming or blocking. All timber, whether permanent or temporary, shall be sound Douglas fir and no second hand material shall be used, provided, however, that material already used in tunnel construction and removed in good condition, may, with the ap-

proval of the District Engineer, be reused where conditions permit.

Timbering shall be placed in such a manner as to be readily removed, without endangering the safety of the excavation or causing weakness or excessive stresses in adjacent timber sets or concrete structures, and any damage which may occur shall be remedied by the Contractor at his own expense, including the removal and replacement of any concrete which has, in the judgment of the District Engineer, been damaged or subjected to excessive loads on account of such operations.

Lagging behind timber sets shall be restricted to the least extent consistent with safety, and, if, in any case, permitted by the District Engineer to remain permanently in place, shall be so spaced as to permit the unrestricted flow of concrete through the lagging to fill any spaces between the lagging and the excavated surfaces.

(f) Structural Steel Supports.—Structural steel shapes may be used to support the sides and tops of the excavation, either entirely or in connection with timbering. Where structural steel ribs are used the same may be allowed to remain in place, provided that they do not project into the concrete more than four inches (4″) beyond the neat lines of the concrete structure. The manner of framing, supporting and removal shall be such as to fully support the excavation while in place, and permit removal without endangering other parts of the structure. All timbering used in connection therewith shall con-

form to the requirements set forth under "Timbering," including the removal before concrete is placed. Where steel is permitted to remain in place, all spaces between the steel and the adjacent earth or rock shall be thoroughly filled with concrete so as to provide firm and uniform bearing and the steel ribs and liners shall be so constructed and erected that no settlement or movement will occur. Liner plates allowed to remain in place shall not project into the neat concrete structure.

(g) Types of Tunnel Section.—Two typical tunnel sections are shown on the plans. The District Engineer shall determine which section shall be used in any specific location in order to meet varying conditions which may be encountered. In general, it is expected that the Type "A" section will be used throughout the major length of the tunnels, but if conditions arise which, in the judgment of the District Engineer, require the use of Type "B" section, the Contractor shall make such modifications in construction as may be necessary.

No extra payment will be allowed on account of such change, but the unit prices bid for the various units or types of work shall include full compensation for such work, labor, material or equipment as may be necessary.

Concrete Lining

6. Description.—The concrete lining for the tunnels shall consist of the concrete arch ring as shown on the plans, with steel reinforcing as designated or as otherwise directed by the District Engineer.

The thicknesses of concrete shown are minimum thicknesses, and the attention of the Contractor is directed to provisions hereinbefore set forth in this section, requiring additional concrete as made necessary by the methods of excavating, timbering, or otherwise supporting the excavation.

7. Materials.—Concrete for lining shall be Class "B" concrete, as provided in Section 13, "Portland Cement Concrete," of these specifications, and the provisions thereof and the provisions contained in Section 15, "Concrete Structures," shall apply to all concrete in tunnel linings except as modified herein. Grouting shall be performed as elsewhere specified in these specifications.

Reinforcing steel, as shown on the plans, is the minimum requirement and the District Engineer shall have the right and authority to increase the amount of reinforcing steel in accordance with his judgment as to necessity; the Contractor shall furnish and place such additional reinforcing steel at no additional cost to the District, other than the price per pound bid for "Reinforcing Steel in Place." Reinforcing Steel shall conform in all respects to requirements contained in Section 14, "Reinforcing Steel" of these specifications.

All brackets, hangers and other steel work shown shall be placed before pouring of concrete and securely anchored to the satisfaction of the District Engineer, so as not to be disturbed or altered in location by the placing of concrete.

8. Finish.—The surfaces of concrete linings which constitute portions of air ducts shall be constructed with extreme care to obtain the smoothest surface possible. The use of metal forms is elsewhere specified for this work. Repairing of pockets, voids and other irregularities in the surface shall be done with extreme care and all surface irregularities shall be removed so that the finished surface is extremely smooth, and will offer the minimum of frictional resistance to the flow of air.

Ceilings and Partitions

9. Ceilings and Partitions.—The ceilings and partitions, except as otherwise provided, shall be constructed of Class "A" Concrete with structural steel shapes and reinforcing steel as shown on the plans. The Contractor's attention is called to the two inch (2") partition forming the side of the exhaust air duct, where welded wire fabric reinforcing mesh, as shown, is to be covered on each side with a "Gunite" or approved equal covering in a manner to provide a dense, air-tight partition with surfaces of extreme smoothness to avoid frictional resistance to flow of air. The "Gunite" or other approved covering shall consist of a mixture of one (1) part Portland Cement to four and one-half (4½) parts of sand, thoroughly mixed dry and screened to remove any particles over three-eighths inch (⅜") in size. Only sufficient water shall be added to provide a uniform mortar capable of being placed and finished by the methods provided.

Any rebound pockets occurring shall be cut out and replaced with proper material. The surface shall be rodded and steel troweled to a smooth even finish.

Ceiling, partition and wall connections with other walls, partitions or ceilings shall be air-tight, and the approval of the Engineer shall be obtained for all methods of constructing joints. Openings for ducts and ports shall be provided in the forms before the placing of concrete; also for all pipes, conduits and other purposes, including electrical wiring, and for all outlets or other required openings for electrical installations.

The surfaces which constitute the walls and ceiling of the roadway area shall be carefully finished to remove all irregularities in the surface and given a cement wash paint coat, as hereinafter provided for exterior walls in Section 33, "Ventilation Buildings."

10. Fresh Air Flues.—Fresh air flues of the materials and dimensions and location shown on the plans shall be erected on one wall of each tunnel at twelve foot (12′) centers, as shown.

Flues shall be constructed of Structural Grade Steel Plate one-eighth inch (⅛″) thick, and shall be constructed in such a manner as to provide a smooth and air-tight inner surface free from offsets, welds or roughness of any sort. The flues shall be rigidly attached to the arch ring by means of three-eighths inch (⅜″) anchor expansion bolts at twelve inch (12″) centers.

The outlet nozzle shall be fitted with an adjustable zinc plate, of No. 16 (0.045 inch) Sheet Zinc Gauge, welded on hinged edge to steel flue and slotted and held in position by five (5) galvanized three-eighths inch (⅜") set screws and washers for each plate.

A typical flue, complete with adjustable nozzle shall be assembled and submitted to the District Engineer for approval before proceeding with the fabrication of all flues.

The three (3) fresh air flues on each end of each tunnel shall be special flues extended to the fresh air ducts of the transition section.

At each of the three (3) cross adits a fresh air flue three inches (3") deep by eighteen inches (18") wide shall be extended from the main fresh air duct of the up-grade tunnel to the crown of the adit. This flue shall have an inlet opening eighteen inches (18") square and an outlet of three inches (3") by eighteen inches (18") and located as shown on the plans.

11. Exhaust Ports.—Exhaust ports shall be located in pairs in the roadway ceiling at fifteen foot (15') intervals in both tunnels and shall be formed complete at the time the ceiling slab is poured. Special reinforcement at these openings shall be placed as shown on the plans. Water deflectors formed in and as a part of the ceiling slab shall be placed on the up-grade side of each port as shown on the plans. Adjustable zinc slides, of No. 16

(0.045 inch) Sheet Zinc gauge, shall be installed on each port, together with bolts, all as shown on the plans.

12. Sheet Zinc.—Sheet zinc adjustable plates for fresh air flues and exhaust ports shall conform to the Standard Specifications for Rolled Zinc (Type "B") of the American Society for Testing Materials (Serial Designation B 69-29) as amended to date.

13. Air Duct Bulkheads.—Across each air duct in each tunnel at locations designated on the plans, a two inch (2") "Gunite," as hereinabove specified, partition shall be constructed, reinforced with welded wire fabric mesh as shown on the plans. These bulkhead partitions shall have Kalamein doors, with necessary fittings, of size shown on the plans.

14. Air Measurement Stations.—At locations designated on the plans, ferrules shall be placed in the ceiling slab and upper air duct slab. These shall consist of one and one-half inch (1½") inner diameter iron pipe size brass or bronze couplings of lengths as shown and with lugs on exterior surface to prevent turning in concrete and with inside surface threaded at each end and equipped with brass or bronze plugs deeply slotted on face to permit of removal.

15. Roadway Pavement.—The Contractor shall construct the roadway pavement of the thickness and section shown on the plans, and in accordance with specifications contained in Section 16, "Port-

land Cement Concrete Pavement." The subgrade shall be prepared in the manner provided in Section 10 for preparation of subgrade.

16. Curbs and Sidewalks.—The curbs and sidewalks shall be poured integrally with each other and all proper provisions made for pipe lines and conduits as shown on the plans.

Concrete shall be Class "B" concrete, and the top three-quarter inch (¾") of the sidewalk shall consist of a mortar wearing coat of one (1) part Portland Cement and two (2) parts fine aggregate, applied not more than one-half (½) hour after the concrete is placed. The wearing coat shall be troweled smooth and marked as directed by the District Engineer.

17. Drainage Structures and Conduits.—Drainage structures, consisting of pipes, conduits, manholes, lampholes, catchbasins and gratings and cast iron metal work shall be constructed at locations and of dimensions shown on the plans. The materials and workmanship shall conform in all respects to specifications elsewhere contained herein, and anything required for a complete working installation, but not specifically mentioned or specified, shall be furnished and installed by the Contractor and shall be of quality and workmanship equal to the general intent of these specifications and to the satisfaction of the District Engineer.

18. Water Pipes.—Water pipes shall be constructed in the locations shown on the plans and shall conform to requirements set forth in Sec-

tion 24, "Piping," of these specifications. All cocks, plugs, adaptors and other necessary accessories as shown on the plans or as required for proper installation shall be furnished and installed.

19. Measurement.—The lineal feet of tunnel sections between portal buildings, as shown on the plans or as modified by the District Engineer, shall constitute the basis of payment for "Tunnel Construction." The measurement will be the horizontal projection of the center line axis of the finished pavement surface which constitutes the Engineer's survey of the alignment and lengths of tunnels. No other method of measurement will be allowed. Where various types of sections are constructed the actual lengths of such sections as constructed, measured as above stated, shall constitute the lengths of such sections to be paid for. No measurement will be made for concrete placed outside the "neat lines of concrete structure" as defined herein, excess excavation or overbreakage or for transporting material except as provided for under "Overhaul."

Cross adits shall be similarly measured by lineal foot of adit along the center line of the floor between the inner or roadway walls of the tunnels they connect.

20. Payment.—The prices bid per lineal foot for "Tunnel Construction" of the various sections and of "Cross Adits" shall constitute full compensation for all excavation; removing, transporting and de-

positing of materials, as herein provided, timber, ing, drilling, blasting, draining, ventilation, timber and removal, structural steel supports and removal, and all concrete work as shown on the plans, including all concrete placed outside the "neat lines of the concrete structure" and all grouting; for all material furnished and the transporting and placing of all materials; for all form work, including the construction, erection and removal thereof; for all finishing and painting of concrete surfaces; for all ceilings and partitions; for pavement and curbs and sidewalks; for water pipes and accessories; for all drainage structures, pipes, conduits, manholes, lampholes, catch-basins, gratings, cast iron metal work; for furnishing and erecting structural steel shapes and members; for construction complete of flues, ports, bulkheads, air measurement stations; for all conduits, pipes, outlets and fixtures, except as otherwise provided, and for all other necessary construction, as shown on the plans, excepting furnishing and placing of reinforcing steel; and for the performance of all work and the furnishing of all labor, materials, tools and equipment necessary or incidental to the completion of the "Tunnel Construction" and "Cross Adits" as specified herein, or shown on the plans.

"Overhaul," measured outside the Portal limits, shall be paid as provided in Section 8, "Grading," at the unit prices bid, and such payment shall constitute full compensation for the hauling, placing and compacting of excavated material on other

parts of the work. No payment will be made for transporting and disposing of surplus materials not used on other parts of the work.

Reinforcing steel shall be paid for per pound in place, as provided in Section 14, "Reinforcing Steel," of these specifications.

SECTION 33. VENTILATION BUILDINGS

1. Description.—Ventilation buildings shall be constructed at the Easterly and Westerly ends of the Tunnel, as shown on the plans, and shall include both the superstructure and the foundations, together with the transition sections and connecting ducts to the Tunnel proper, and including the roadway pavement, curbs and sidewalk. All necessary excavation shall be included as part of the construction of the buildings.

The ventilation building at the Easterly Portal shall include as an integral part the construction complete of the roadway structure or bridge immediately to the Northeast of the building proper, and which will carry the existing road to a connection with the present Tunnel Road.

The buildings shall be of reinforced concrete and structural steel type of construction, as shown on the plans, and shall conform in all respects to the specifications contained in this section and in other sections which may apply.

This section is intended primarily to cover architectural requirements and the Contractor shall consider this section only as a part of the entire speci-

fication, and not as a separate or complete specification in itself.

Wherever provisions of other parts of these specifications appear to conflict with specifications in this section, provisions of this section shall govern, but in all other respects, when applicable, the provisions of the various sections herein contained shall apply, although not specifically repeated or otherwise referred to in this section.

The work to be done shall include the complete construction of the structures, together with all necessary accessories, including metal work, plumbing, pipes and conduits, roofing, flashing, glazing, hardware, floor coverings, partitions, painting, plastering, doors, elevator—including installation, drains, septic tanks, and whatever else is necessary to properly complete the buildings as shown on the plans or as specified herein. The omission of any detail not specifically shown or mentioned herein shall not relieve the Contractor of his responsibility to provide a complete and finished structure suitable for the purposes intended, with all labor and materials for any detail necessary to carry out the purpose and intent of the plans and specifications; and without extra charge therefor.

Ventilation stacks, fans, damper doors and motors, and electrical equipment, are not a part of the buildings as intended by this section, but the construction of the building shall include the placing and setting of all connection bolts and fittings re-

quired for the complete assembly of the above in the locations required.

2. Conduct of Work.—The Contractor shall so conduct his work that the construction as set forth in this section shall coordinate with other parts of the work, whether done by one Contractor or several Contractors.

The Contractor shall employ at all times on the work provided for in this section a competent general foreman, who shall have had previous experience in general building construction.

The Contractor shall have the full responsibility of constructing the various units of the work as set forth in this section, and his attention is particularly directed to the provisions set forth in Section 6, these specifications, under paragraph "M", "Sub-letting and Assignment."

3. Clearing, Grading and Excavating.—"Clearing," "Grading" and "Structural Excavation" shall be performed in accordance with Sections 7, 8 and 9 of these specifications, and payment for these items will be made in accordance with provisions therein at the unit prices bid.

PLAINTIFF'S EXHIBIT No. 7

JOINT HIGHWAY DISTRICT No. 13
OF THE STATE OF CALIFORNIA

Amendments and Supplements to Final Specifications for Construction of Project, Including Highway, Highway Tunnel and Approaches, With Appurtenant Structures

WALLACE B. BOGGS
District Engineer

DIRECTORS

Thomas E. Caldecott.....President
Harry M. Stow.....Secretary
Henry L. Hinman.....Treasurer

LEGAL

Archibald B. Tinning.....Attorney

Specification No._____
Set No._____

Joint Highway District No. 13
of the State of California
office of
Wallace B. Boggs,
District Engineer
1448 Webster Street
Oakland, California

January 9, 1934

AMENDMENTS AND SUPPLEMENTS TO FINAL SPECIFICATIONS FOR CONSTRUCTION OF PROJECT.

Paragraph 17 of Section 34 of the final specifications heretofore adopted by the Board of Directors of Joint Highway District No. 13 of the State of California on the 30th day of March, 1933, and approved by Earl Lee Kelly, Director of the Department of Public Works of the State of California on the 5th day of April, 1933, is hereby amended to read as follows:

"After the final award of contract and not less than four (4) months prior to the installation of the ventilating equipment provided for in these specifications in the buildings on the project, tests on one (1) blower fan and one (1) exhaust fan will be required to verify the performance curves submitted with the bid. These tests will be made at the manufacturer's plant or other place suitable to

all concerned. These tests shall be made in the presence of a reputable testing engineer or firm of testing engineers to be designated by the District Engineer, and shall be in strict accordance with the Standard Test Code of the National Association of Fan Manufacturers and of the American Society of Heating and Ventilating Engineers, adopted June 1923, or as subsequently amended."

The final specifications adopted March 30, 1933, by the Board of Directors of the District and approved on the 5th day of April, 1933, by Earl Lee Kelly, Director of the Department of Public Works of the State of California, are hereby amended to read as follows:

"In all cases where the said final specifications provide that the Contractor shall submit to the District Engineer complete shop drawings in triplicate of all the equipment proposed to be furnished, which drawings shall show the weight of all parts and of the assembled units; material from which each part is constructed, complete dimensions and clearances required for removal of parts of units; location and sizes of anchor and connection bolts, and all such information as is hereinafter called for in these specifications and as may be required by the District Engineer. Such shop drawings showing all of the matters and things hereinabove specified shall be submitted to the District Engineer in not less than four (4) months prior to the installation of any mechanical equipment on the project."

Attention of all bidders under these specifications is called to the fact that since the adoption of the final plans and specifications for the project of Joint Highway District No. 13 on the 30th day of March, 1933, and the approval thereof by Earl Lee Kelly, Director of the Department of Public Works of the State of California on the 5th day of April, 1933, the President of the United States has approved the National Industrial Recovery Act and in accordance with law has created a Public Works Administration and a special Board for public works, and that said National Industrial Recovery Act and the Rules and regulations approved by said special Board for public works require consideration by bidders in submitting proposals under said plans and specifications.

The attention of all bidders is hereby specifically called to Bulletin No. 2 of Federal Emergency Administration of Public Works entitled "General Information and Instructions for the Guidance of State Advisory Boards and State Engineers (P.W.A.)." A grant of thirty (30) per cent of the cost of labor and material used in the project of the District has been made by the Public Works Administration of the United States under the terms of said National Industrial Recovery Act, and all bidders are hereby advised that the Directors of the District will cooperate with the Public Works Administration and all its officers and employees in the enforcement of all of the provisions of said

National Industrial Recovery Act and the rules and regulations heretofore and hereafter promulgated applicable to the performance of the work on the project of the District.

Bidders are advised to secure complete information as to the rules and regulations of the Public Works Administration applicable to the work to be performed to complete the project of the District, to the latest date available at the time the respective proposals of the bidders are submitted to the District.

All bidders are hereby advised that the District has applied to the Public Works Administration for a waiver of the provisions of subdivision (c) of Article A of subdivision B of said Bulletin No. 2 of the Public Works Administration which reads as follows:

"(c) No work shall be permitted on Sundays or legal holidays, except in cases of emergency," for the reason that the tunnel work on the project of the District may be more safely and efficiently performed if continuous construction is permitted. Whether or not the application of the District for a waiver of said provision of said subdivision (c) will be granted, cannot be ascertained until proper authorities of the Public Works Administration have acted upon the request of the District for said waiver, and all bidders are hereby notified to inquire at the office of the District Engineer, 1448 Webster Street, Oakland, California, at least ten

(10) days prior to the final date for the submission of bids to ascertain whether or not the application of the District for a waiver of the provisions of said subdivision (c) has been acted upon, and as to whether or not work may proceed on the project of the District on Sundays and holidays.

Wherever reference is made in the said final specifications adopted March 30, 1933, and approved by Earl Lee Kelly, Director of the Department of Public Works of the State of California on the 5th day of April, 1933, to any law of the State of California or to the regulation of any commission or regulatory body of the State of California, said final specifications are hereby amended to include a reference to all laws of the State of California enacted since the adoption of said final specifications which amend, supplement, complement or repeal any of the laws refered to in said final specifications. Likewise all regulations of any commission or official board or official body of the State of California, which have been promulgated or issued since the date of the adoption of said final specifications which supplement, amend, complement or add to the regulations of such commission, board or official body, in effect at the date of the adoption of said final specifications, are hereby referred to and incorporated in said final specifications for all purposes the same as if set forth herein at length, it being the intention of the District by this paragraph of the final specifications to

call the attention of all bidders to the fact that all laws of the State of California and all regulations of all commissions, boards and public bodies of the State of California enacted or promulgated since the adoption of said final specifications as aforesaid shall apply to the work to be performed under the contract awarded to the successful bidder as fully as if in these specifications set forth at length.

Paragraph (z-2) of Section 6 of the original specifications adopted March 30, 1933, and approved by Earl Lee Kelly, Director of the Department of Public Works of the State of California on the 5th day of April, 1933, is hereby amended to read as follows:

"(z-2) Payment of Not Less Than General Prevailing Rate of Wages . The Contractor and all subcontractors under him shall pay all their laborers, workmen, mechanics and employees on said work a salary or wage at least equal to the prevailing salary or wage for the same quality of service rendered to private persons, firms or corporations under similar employment and which salary or wage shall not be less than general prevailing rate of per diem wages for the work of a similar character in the locality in which the work is performed, and not less than the general prevailing rate of per diem wages for overtime work, and which salary or wage shall not be less than the stipulated rates contained in a schedule thereof which has been ascertained and determined by the Board of Directors of the Dis-

trict and which is now on file with the Secretary of said Board and by reference incorporated herein and made a part hereof, and a copy of which is hereunto appended and marked "Exhibit A." Reference to said schedule of salary or wages, a copy of which is hereto appended and marked "Exhibit A" was ascertained and determined and adopted by a resolution of the Board of Directors of the District on the 9th day of January, 1934. The Contractor shall forfeit as a penalty to the District Ten ($10.00) Dollars for each laborer, workman or mechanic employed for each calendar day or portion thereof, if such laborer, workman or mechanic is paid less than said stipulated wages for work done under said contract by him, or by any subcontractor under him, in violation of Chapter 397 of the Laws of 1931 (Stats. 1931, page 910) of the State of California, and said sums and amounts which shall have been so forfeited shall be withheld and retained from payments due to the Contractor pursuant to this contract and the terms of said Act; provided, however, that no sum shall be so withheld, retained or forfeited except from the final payment, without a full investigation by either the Division of Labor Statistics and Law Enforcement of the State Department of Industrial Relations or by said Board of Directors.

AMENDMENTS AND SUPPLEMENTS TO FINAL SPECIFICATIONS TO CONFORM TO REQUIREMENTS OF FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS

Article A. (a) Convict Labor. No convict labor shall be employed on the project and no materials manufactured or produced by convict labor shall be used on the project.

(b) Thirty-Hour Week. Except in executive, administrative and supervisory positions, so far as practicable and feasible in the judgment of the Government Engineer, no individual directly employed on the project shall be permitted to work more than 30 hours in any 1 week: Provided, That this clause shall be construed to permit working time lost because of inclement weather or unavoidable delays in any 1 week to be made up in the succeeding 20 days.

This provision shall for the purposes of this contract supersede the terms of any code adopted under title I of the National Industrial Recovery Act.

(c) No work shall be permitted on Sundays or legal holidays except in cases of emergency. (Note: See page 4 of these Amendments.)

Article B. (a) Wages. All employees directly employed on this work shall be paid just and reasonable wages, which shall be compensation sufficient to provide, for the hours of labor as limited, a standard of living in decency and comfort. The

Contractor and all subcontractors shall pay not less than the minimum hourly wage rates for skilled and unskilled labor prescribed by the Federal Emergency Administration of Public Works, viz:

Skilled Labor	$1.10
Unskilled Labor	$ .45

(b) A clearly legible statement of all wage rates to be paid the several classes of labor employed on the work shall be posted in a prominent and easily accessible place at the site of the work, and the Contractor shall keep a true and accurate record of the hours worked by and the wages paid to each employee and shall furnish the Government Engineer with a sworn statement thereof on demand. All employees shall be paid in full not less often than once each week and in lawful money of the United States in the full amount accrued to each individual at the time of closing of the pay roll, which shall be at the latest date practicable prior to the date of payment, and there shall be no deductions or rebates on account of goods purchased, rent, or other obligations, but such obligations shall be subject to collection only by legal process.

(c) In the event that the prevailing hourly rates prescribed under collective agreements or understandings between organized labor and employers on April 30, 1933, shall be above the minimum rates specified above, such agreed wage rates shall apply: PROVIDED, That such agreed wage rates shall be effective for the period of this contract, but

not to exceed 12 months from the date of the contract.

(d) The above designated minimum rates are not to be used in discriminating against assistants, helpers, apprentices, and serving laborers who work and serve skilled journeymen mechanics and who are not to be termed as "Unskilled Laborers."

(e) The minimum wage rates herein established shall be subject to change by the Federal Emergency Administration of Public Works on recommendation of the Board of Labor Review. In event that the Federal Emergency Administration of Public Works acting on such recommendation establishes different minimum wage rates, the contract price shall be adjusted accordingly on the basis of all actual labor costs on the project to the Contractor, whether under this contract or any subcontract.

(f) The Board of Labor Review shall hear all labor issues arising under the operation of this contract and as may result from fundamental changes in economic conditions during the life of this contract. Decisions of the Board of Labor Review, including decisions as to its jurisdiction to act upon the application of persons not parties to this contract, shall be binding upon all parties.

Article C. (a) Labor Preferences. Preference shall be given, where they are qualified, to ex-service men with dependents, and then in the following order: (1) To citizens of the United States and aliens who have declared their intention of becom-

ing citizens, who are bona fide residents of the political subdivision and/or county in which the work is to be performed and (2) to citizens of the United States and aliens who have declared their intention of becoming citizens, who are bona fide residents of the State, Territory, or district in which the work is to be performed: Provided, that these preferences shall apply only where such labor is available and qualified to perform the work to which the employment relates.

(b) Employment Services. To the fullest extent possible, labor required for the project and appropriate to be secured through employment services, shall be chosen from the lists of qualified workers submitted by local employment agencies designated by the United States Employment Service: Provided, however, That organized labor, skilled and unskilled, shall not be required to register at such local employment agencies but shall be secured in the customary ways through recognized union locals. In the event, however, that qualified workers are not furnished by the union locals within 48 hours (Sundays and holidays excluded) after request is filed by the employer, such labor may be chosen from lists of qualified workers submitted by local agencies designated by the United States Employment Service. In the selection of workers from lists prepared by such employment agencies and local unions, the labor preferences provided in section (a) of this article shall be observed.

(c) Compliance with Title I, N.I.R.A. The Contractor agrees to comply with the conditions prescribed in section 7 (a) (1) and 7 (a) (2) of title I of the National Industrial Recovery Act, and to cause all subcontractors to comply therewith.

Article D. Human Labor. The maximum of human labor shall be used in lieu of machinery wherever practicable and consistent with sound economic and public advantage; and to the extent that the work may be accomplished at no greater expense by human labor than by the use of machinery, and labor of requisite qualifications is available, such human labor shall be employed.

Article E. Compensation Insurance. The Contractor will furnish compensation insurance for employees on this work and comply with the workmen's compensation laws of the State, Territory, or district in which the work is to be performed, and will give proof of such adequate insurance satisfactory to the Government Engineer.

Article F. Persons Entitled to Benefits of Labor Provisions. The Contractor will extend to every person who performs the work of a laborer or of a mechanic on the project or on any part thereof the benefits of the labor and wage provisions of this contract, regardless of any contractual relationship between the Contractor and such laborer or mechanic, or between any subcontractor and such laborer or mechanic. There shall be no discrimination in the selection of labor on the ground of race, creed or color.

Article G. Withholding Payment. Joint Highway District No. 13 of the State of California may withhold from the Contractor so much of accrued payments as may be necessary to pay to laborers or mechanics employed by the Contractor or any subcontractor on the work, the difference between the rate of wages required by this contract to be paid to laborers or mechanics on the work and the rate of wages actually paid to such laborers or mechanics.

Article H. Inspection of Record. The Federal Emergency Administration of Public Works, through its authorized agents, shall have the right to inspect all work as it progresses, and shall have access to all pay rolls, records of personnel, invoices of materials, and any and all other data relevant to the performance of this contract.

Article I. (a) N.R.A. Materials. So far as articles, materials, and supplies produced in the United States are concerned, only articles, materials, and supplies produced under codes of fair competition under title I of the National Industrial Recovery Act, or under the President's Reemployment Agreement, shall be used in the performance of this work, except when the Government Engineer certifies that this requirement is not in the public interest or that the consequent cost is unreasonable.

(b) Local Preference. So far as practicable, and subject to the provisions of section (a) of this article, preference shall also be given to the use of

locally produced materials if such does not involve higher cost, inferior quality, or insufficient quantities, subject to the determination of the Government Engineer.

Article J. Reports. The Contractor will make report in triplicate monthly and cause all subcontractors to report in like manner, within 5 days after the close of each calendar month, on forms to be furnished by the United States Department of Labor, the number of persons on their respective pay rolls, the aggregate amount of such pay rolls, and the man-hours work, wage scales paid to the various classes of labor, and the total expenditures for materials. Two copies of each monthly reports are to be furnished to the Government Engineer, and one copy to the United States Department of Labor. The Contractor shall also furnish to the Joint Highway District No. 13 of the State of California, to the Government Engineer, and to the United States Department of Labor the names and addresses of all subcontractors on the work at the earliest date practicable.

Article K. Accident Prevention. The Contractor shall at all times exercise reasonable precautions for the safety of employees on the work and shall comply with all applicable provisions of the Federal, State, and municipal safety laws and building and construction codes. All machinery and equipment and other physical hazards shall be guarded in accordance with safety codes approved by the

American Standards Association, unless such codes are incompatible with Federal, State, or municipal laws or regulations.

Article L. (a) Subcontractors. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relating to this work to insure the fulfillment of all provisions of this contract affecting such subcontractors, particularly articles A-K, inclusive.

(b) All bids submitted by subcontractors should state the minimum wage rates established in article B hereof.

(c) No subcontract shall be let to any subcontractor who has not signed and complied with the applicable code or codes of fair competition approved under title I of the National Industrial Recovery Act for the trade or industry or subdivision thereof to which the work relates, or, if there be no approved code of fair competition for such trade or industry or subdivision, who has not signed and complied with the President's Reemployment Agreement.

Article M. Termination for Breach. In the event that any of the provisions of articles A to L of this contract are violated by the Contractor or by any subcontractor on the work, the Joint Highway District No. 13 of the State of California may terminate the contract by written notice to the Contractor. In such event Joint Highway District No. 13 of the State of California may take over the work

and prosecute the same to completion by contract or otherwise, and the Contractor and his sureties shall be liable to the Joint Highway District No. 13 of the State of California for any excess cost occasioned the Joint Highway District No. 13 of the State of California, and Joint Highway District No. 13 of the State of California may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefor.

Article N. Definition. The term "Government Engineer" as used herein shall mean the State Engineer (P.W.A.) or his duly authorized representative, or any person to whom his duties or functions may be transferred by the Federal Emergency Administration of Public Works, or its successors.

[Endorsed]: U. S. Dist Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 7. Filed April 13, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

PLAINTIFF'S EXHIBIT No. 16

CONTRACT

Between Joint Highway District No. 13 of the State of California and Six Companies of California, a corporation.

Dated: June 4th, 1934. Filed June 14th, 1934. Harry M. Stow, Secretary, by L. V. Eaton, Ass't Secty.

Note: This form for information only. The actual contract will be prepared on a similar form by the Attorney for the District upon award of contract.

CONTRACT

THIS AGREEMENT, made and entered into this 4th day of June, 1934, by and between Joint Highway District No. 13 of the State of California, hereinafter designated as the first party, and Six Companies of California, a Nevada corporation duly qualified to, and doing business in the State of California, hereinafter designated as the second party;

WITNESSETH:

That whereas it has been determined by the Board of Directors to construct, erect and complete the project of said Joint Highway District No. 13 of the State of California, which includes a highway, highway tunnel and approaches with appurtenant structures, including ventilation buildings, ventilation equipment and accessories, and the con-

struction of highway approaches with pavement, drainage structures, curbs, gutters and sidewalks where required, construction of grade separation structures, viaducts, retaining walls and incidental structures, and connections with existing streets; located partly in the City of Oakland, County of Alameda, State of California, and partly in the County of Contra Costa, State of California, and all in said Joint Highway District No. 13 of the State of California, the westerly terminus of said project being located near Broadway and Keith Avenue in the said City of Oakland and the easterly terminus of said project being a point on the State Highway in said Contra Costa County approximately fourteen hundred (1,400') feet northerly from the intersection of the Fish Ranch Road with said State Highway which is commonly known as and called the "Tunnel Road," all in accordance with the final surveys, plans, specifications and detailed drawings therefor adopted by the Board of Directors of said Joint Highway District No. 13 on the 30th day of March, 1933, and the amendments and supplements to said final specifications adopted by the Board of Directors of said Joint Highway District on the 9th day of January, 1934, and on the 3rd day of April, 1934, made by Wallace B. Boggs, District Engineer, now on file in the office of the first party, and which said final surveys, plans, specifications and detailed drawings are hereby referred to for a more definite, complete and distinct description of the work to be performed

under this contract, and which are hereby made a part of this contract the same as though fully set forth herein;

Now, therefore, in consideration of the premises and in further consideration of the sums to be paid by the first party to the second party herein, as hereinafter provided, in full for the performance of all acts and things to be done and performed by said second party, the said second party, for itself, its successors or assigns, hereby promises, covenants and agrees with the said first party that the said second party will honestly and faithfully do and perform the work herein referred to and will furnish all the labor and material necessary therefor in strict accordance with the said plans and specifications and in strict accordance with the terms of this contract and agreement, and upon the completion of said work as provided for by the terms of this contract that the said second party will deliver said work and structures herein provided for to the first party or its authorized agents.

That in consideration of the foregoing covenants, promises and agreements on the part of the second party and the faithful performance of said work and the strict and literal fulfillment of each and every such covenant, promise and agreement, and as compensation agreed upon for said work of construction, erection and completion as aforesaid, the first party covenants, promises and agrees to pay the sums hereinafter set forth to the second party in full for said work, as follows, to-wit:

Items	Quantity Estimates	Unit Prices		Estimated Total
1. Grading	763,000 cu. yds.	at $ 0.33	per cu. yd.	$ 251,790.00
2. Overhaul	8,100,000 sta. yds.	at $ 0.005	per sta. yd.	$ 40,500.00
3. Structural Excavation, Class "A"	44,000 cu. yds.	at $ 1.20	per cu. yd.	$ 52,800.00
4. Structural Excavation, Class "B"	1,000 cu. yds.	at $ 2.00	per cu. yd.	$ 2,000.00
5. Shoulders	362,000 sq. ft.	at $ 0.035	per sq. ft.	$ 12,670.00
6. Reinforcing Steel	4,420,000 lbs.	at $ 0.04	per lb.	$ 176,800.00
7. Structural Steel	445,000 lbs.	at $ 0.05	per lb.	$ 22,250.00
8. Concrete Structures, Class "A" Concrete	12,150 cu. yds.	at $15.50	per cu. yd.	$ 188,325.00
9. Concrete Structures, Class "B" Concrete	3,200 cu. yds.	at $14.50	per cu. yd.	$ 46,400.00
10. Portland Cement Concrete Pavement, 8 inch	37,700 sq. ft.	at $ 0.24	per sq. ft.	$ 9,048.00
11. Portland Cement Concrete Pavement, 6 inch	30,400 sq. ft.	at $ 0.18	per sq. ft.	$ 5,472.00
12. Asphalt Concrete	44,000 sq. ft.	at $ 0.08	per sq. ft.	$ 3,520.00
13. Penetration Oil Macadam Pavement	724,000 sq. ft.	at $ 0.14	per sq. ft.	$ 101,360.00
14. Concrete Curbs, 6 inch	2,725 lin. ft.	at $ 0.52	per lin. ft.	$ 1,417.00
15. Concrete Curbs, 12 inch	945 lin.ft.	at $ 0.80	per lin. ft.	$ 756.00
16. Concrete Curb, 6 inch, with guard	46 lin. ft.	at $ 1.00	per lin.ft.	$ 46.00
17. Concrete Gutters	4,300 sq. ft.	at $ 0.25	per sq. ft.	$ 1,075.00
18. Cement Sidewalks	21,000 sq. ft.	at $ 0.13	per sq. ft.	$ 2,730.00
19. Fill Protectors	15	at $19.00	each	$ 285.00
20. Corrugated Metal Pipe Culvert, 8 inch	1,470 lin. ft.	at $ 1.30	per lin. ft.	$ 1,911.00
21. Corrugated Metal Pipe Culvert, 12 inch	210 lin. ft.	at $ 2.00	per lin. ft.	$ 420.00

Items	Quantity Estimates	Unit Prices		Estimated Total
22. Corrugated Metal Pipe Culvert, 18 inch	3,300 lin. ft.	at $ 3.00	per lin. ft.	$ 9,900.00
23. Reinforced Concrete Pipe Culvert, 10 inch, "S"	340 lin. ft.	at $ 1.20	per lin. ft.	$ 408.00
24. Reinforced Concrete Pipe Culvert, 12 inch, "S"	750 lin. ft.	at $ 1.50	per lin. ft.	$ 1,125.00
25. Reinforced Concrete Pipe Culvert, 15 inch "S"	430 lin. ft.	at $ 1.80	per lin. ft.	$ 774.00
26. Reinforced Concrete Pipe Culvert, 18 inch "S"	85 lin. ft.	at $ 2.00	per lin. ft.	$ 170.00
27. Reinforced Concrete Pipe Culvert, 24 inch "X"	1,470 lin. ft.	at $ 4.40	per lin. ft.	$ 6,468.00
28. Reinforced Concrete Pipe Culvert, 36 inch "X"	680 lin. ft.	at $ 8.50	per lin. ft.	$ 5,780.00
29. Vitrified Pipe Sewers, 6 inch	190 lin. ft.	at $ 1.00	per lin. ft.	$ 190.00
30. Vitrified Pipe Sewers, 8 inch	415 lin. ft.	at $ 1.20	per lin. ft.	$ 498.00
31. Manholes, Standard tops	10	at $90.00	each	$ 900.00
32. Manholes, Inlet tops	5	at $100.00	each	$ 500.00
33. Manholes, Grating tops	4	at $90.00	each	$ 360.00
34. Storm Water Inlets, 34-inch openings	1	at $75.00	each	$ 75.00
35. Storm Water Inlets, "B"	10	at $100.00	each	$ 1,000.00
36. Storm Water Inlets, "C"	12	at $80.00	each	$ 960.00
37. Lampholes, 6 inch	1	at $24.00	each	$ 24.00
38. Lampholes, 8 inch	1	at $26.00	each	$ 26.00
39. Lampholes, 12 inch	3	at $36.00	each	$ 108.00
40. Handhole	1	at $30.00	each	$ 30.00
41. Underdrains, 8 inch Perforated Corrugated Metal Pipe	4,100 lin. ft.	at $ 1.40	per lin. ft.	$ 5,740.00

Items	Quantity Estimated	Unit Prices		Estimated Total
42. Piping, Cast Iron, 6 inch	2,020 lin. ft.	at $ 1.50	per lin. ft.	$ 3,030.00
43. Guard Rail	12,400 lin. ft.	at $ 0.80	per lin. ft.	$ 9,920.00
44. Pipe Hand Rail	640 lin. ft.–	at $ 3.00	per lin. ft.	$ 1,920.00
45. Riprap	220 cu. yds.	at $ 5.00	per cu. yd.	$ 1,100.00
46. Metal Cribbing	46,000 lbs.	at $ 0.13	per. lb.	$ 5,980.00
47. Stone or Gravel for Foundations	330 cu. yds.	at $ 3.00	per cu. yd.	$ 990.00
48. Tunnel Construction Type "A"	5,620 lin. ft.	at $325.00	per lin. ft.	$1,826,500.00
49. Tunnel Construction Type "B"	200 lin. ft.	at $400.00	per lin. ft.	$ 80,000.00
50. Cross Adits	322 lin. ft.	at $40.00	per lin. ft	$ 12,880.00
51. Ventilation Buildings, West Building and East Building, Complete	Lump sum			$ 340,000.00
52. Ventilation Equipment, Furnishing and Installing, Complete	Lump sum			$ 160,000.00
53. Mechanical Equipment, Furnishing and Installing, Complete	Lump Sum			$ 60,000.00
54. Electrical Equipment, Furnishing and Installing, Complete	Lump sum			$ 210,000.00
55. Carbon Monoxide Detectors and Recorders, Furnishing and Installing, Complete	Lump sum			$ 15,000.00
			Total	$3,683,931.00

The unit prices hereinabove set forth are the prices bid by the second party and accepted by the first party and payment shall be made to second party on the basis of the units furnished of each item hereinabove specified. The lump prices for items 51 to 55 inclusive, hereinabove set forth, are in each case the total prices to be paid by the first party to the second party for the items therein listed.

A copy of the bid of the second party is on file with the Secretary of the Board of Directors of the first party and is hereby expressly referred to and made a part of this agreement.

It is hereby mutually understood and agreed by and between the parties hereto as follows:

1. That the work provided for by this contract shall be actually commenced by said second party within (10) calendar days from and after the execution of the same and shall be completed within seven hundred twenty (720) calendar days from and after the execution of this contract, time being of the essence hereof.

2. That the price to be paid said second party as hereinbefore provided shall be paid in legally executed and regularly issued warrants of the said first party, drawn on the appropriate fund or funds of said Joint Highway District, as required by law and the order of the Board of Directors of the first party.

3. That the said first party, or its regularly appointed District Engineer and his assistants and

agents shall, at all times during the progress of said work, have free access thereto, and shall be allowed to examine the same, and all the material to be used therein, and if the same or any part thereof shall not be in strict accordance with said plans and specifications herein referred to, it shall refuse to accept and shall reject said defective work and material.

The whole of said work is to be done to the satisfaction and approval of said first party and its agents authorized to superintend the same, in strict accordance with the plans and specifications hereinbefore referred to.

4. That the second party is skilled in the trade or calling necessary to perform the work agreed to and done under this contract, and that the first party, not being skilled in such matters, relies upon the skill of said second party to do and perform the work and labor necessary in the most skillful and durable manner, and said second party guarantees the same, and the acceptance of the work does not operate as a release to said second party or its bondsmen from said guarantee.

5. That the second party further agrees that if the work to be done under this contract and agreement shall be abandoned, or if this contract shall be assigned by the second party, or if at any time the District Engineer shall be of the opinion, and shall so certify in writing to the said first party

that the said work or any part thereof is unnecessarily or unreasonably delayed, or that the said second party is wilfully violating any of the conditions or covenants of this contract, or is executing this contract in bad faith, the said first party shall have the power to notify the said second party to discontinue all work or any part thereof under this contract, and thereupon the said second party shall cease to continue said work or such part thereof as said first party may designate, and the said first party shall thereupon have the power to place such and so many persons, and to obtain by contract, purchase or hire, such animals, carts, wagons, implements, tools, material or materials, by contract or otherwise, as said first party may deem advisable, to work at and be used to complete the work herein described, or such part thereof as the agent authorized to superintend the same may deem necessary, and to use such material as they may find upon the line of said work and to charge the expense of such labor and material, animals, carts, wagons, implements and tools to the second party, and the expense so charged shall be deducted and paid by the first party out of such moneys as may be either due or may at any time thereafter become due to the said second party under and by virtue of this contract or any part thereof.

In case such expense is less than the sum which would have been payable under this contract, if the same had been completed by the said second party,

the said second party shall be entitled to receive the difference, and in case such expense shall exceed the last said amount, then the said second party or its bondsmen shall pay the amount of such excess to the first party on notice from the said first party of the excess so due.

6. That upon notice of the completion of said work, the said first party or its agent shall proceed without delay to examine the same, and if found to be in accordance with the aforesaid plans and specifications and this agreement, shall accept said work and shall notify the second party thereto, or its agents, of such acceptance.

7. Payments for said work will be made only upon the certificate of the District Engineer for work actually performed. The District Engineer shall measure the work on or about the first day of each month and at the time of completion of the entire work, and shall render a certificate on or about the tenth day of each month and at the completion of the entire work, stating the amount of work performed during the previous calendar month, and during the current month, at the time of completion. The Contractor shall then, at the times above specified, be entitled to receive a payment from the District in an amount to be determined as follows: Until the total value of the work done since commencement of performance of the contract exceeds Four Hundred Thousand Dollars ($400,000.00) the payment will be seventy-five per

cent (75%) of the amount specified in the District Engineer's certificate; thereafter and until the total value of the work done since the commencement of performance of the contract equals One Million Dollars ($1,000,000.00), the constant sum of One Hundred Thousand Dollars ($100,000.00) will be retained by the District out of said total value; thereafter the progress payment will be ninety per cent (90%) of the amount specified in the Engineer's certificate, provided that no such estimate of payment shall be required to be made when, in the judgment of the District Engineer, the work is not proceeding in accordance with the provisions of the contract, or when, in his judgment, the total value of the work done since the last estimate amounts to less than Five Hundred Dollars ($500.00), except the certificate and payment required at the completion of the entire work.

The acceptance by the Contractor of the final ninety per cent (90%) payment for the completed work shall be and shall operate as a release to the District from all claims and liability to the Contractor for anything done or furnished for or relating to the work, or for any act or neglect of the District or its agent in any way affecting the work, excepting the claim of the Contractor against the District for the moneys herein provided to be paid by the District to the Contractor thirty-five (35) days after the acceptance of the contract.

Thirty-five (35) days after the acceptance of the work by a certificate of acceptance duly rendered by

the District Engineer and final approval and acceptance by the Board of Directors of the District, the Contractor shall be entitled to receive a payment of the balance due under this contract in the amount of ten per cent (10%) of the aggregate amount of all certificates of the District Engineer.

8. That the said second party shall furnish and deliver to the said first party, upon the execution of this contract, a good and sufficient bond and undertaking in the sum of One Million Eight Hundred Forty-two Thousand ($1,842,000.00) Dollars, with sufficient corporate surety thereon, approved by the Board of Directors of first party, conditioned for the faithful performance of this contract by second party, according to the terms and provisions herein.

9. That the said second party shall furnish and deliver to said first party, upon the execution of this contract, a good and sufficient bond and undertaking in the sum of at least One Million Eight Hundred Forty-two Thousand ($1,842,000.00) Dollars, approved by the Board of Directors of first party, with sufficient corporate surety thereon in accordance with any law of the State of California requiring the same and with an Act of the Legislature of the State of California, entitled, "An Act to secure the payment of the clams of persons employed by contractors upon public works, and the claims of persons who furnish materials, supplies, teams, implements or machinery used or consumed by such contractors in the performance of

such works, and prescribing the duties of certain public officers with respect thereto," and any Act or Acts amendatory thereof.

10. That eight hours' labor shall constitute a day's work for any one calendar day, and all work and labor performed under and in accordance with the terms and conditions of this contract.

11. That no laborer, workman or mechanic employed at any time by the said second party, or by any subcontractor or subcontractors under it, upon the work or upon any part of the work contemplated by this contract, shall be required or permitted to work thereupon more than eight hours in any one calendar day, except in cases of extraordinary emergency caused by fire, flood or danger to life or property, or except to work upon public, military or naval defenses or works in time of war; provided, however, that within thirty (30) days after any employee is permitted to work over eight hours in any one calendar day due to such extraordinary emergency, the contractor or its duly authorized agent shall file with the Board of Directors of the first party a report verified by oath setting forth the nature of the said emergency, which report shall contain the name of said worker and the hours worked by him on said day, and failure to file the said report within the said time shall be prima facie evidence that no extraordinary emergency existed. The contractor and each subcontractor shall also keep an accurate record showing the names and actual hours worked of all workers em-

ployed in connection with the said public work, which record shall be open at all reasonable hours to the inspection of the Board of Directors of the first party or its deputies or agents, and to the Chief of the Division of Labor Statistics and Law Enforcement of the Department of Industrial Relations, his deputies or agents. The said second party hereby agrees to forfeit as a penalty to the said first party, out of any moneys becoming due to it from the said first party, under the terms of this contract, the sum of Ten ($10.00) Dollars for each laborer, workman, or mechanic employed in the execution of this contract by said second party, or by any subcontractor under said second party, for each and every calendar day during which said laborer, workman or mechanic is required or permitted to labor more than eight hours in violation of the provisions of Section 653c of the Penal Code of the State of California, and that the said first party is hereby authorized and directed through its proper representatives, to withhold and retain from the said second party, or from the said subcontractors under it, all sums and amounts which shall have been forfeited pursuant to this stipulation, as the property of the said first party, as provided for by Section 653c of the Penal Code of the State of California, and any Act or Acts amendatory thereof; provided, however, that no sum shall be so withheld, retained or forfeited, except from the final payment, without a full investigation by either the Division of Labor Statistics and Law En-

forcement of the State Department of Industrial Relations or by said Board of Directors.

12. That the said second party shall, at its own expense, before commencing work under this contract, take out and at all times during the prosecution of the work hereunder, and until final completion and acceptance thereof, maintain, in full force and effect, compensation insurance with an insurance carrier satisfactory to said first party, covering the full liability of said second party to any and all persons employed by said second party, directly or indirectly, in or upon said work, or their dependents, in accordance with the provisions of the Workmen's Compensation Insurance and Safety Act, Chapter 176 of the Laws of 1913 of the State of California, and any Act or Acts amendatory thereof.

And said second party failing to take out or maintain such compensation insurance before commencing work under this agreement, the same may be taken out, maintained or renewed by said first party at the cost and expense and in the name of said second party, said cost and expenses thereof to be deducted from any installment payment becoming due to said second party hereunder.

13. That if any material, composition, process, or any other thing so called for or required by the plans and specifications heretofore adopted by the first party is covered by letters patent, all royalties and expenses thereof, all litigation therefrom, or other things whatsoever, which may develop as a

cost from the use of such material, composition, process or any other thing which is covered by letters patent shall be borne by the second party.

14. That any alteration or alterations made in the plans and specifications which are a part of this contract or any provision of this contract shall not operate to release any surety or sureties from liability on any bond or bonds attached hereto and made a part hereof, and consent to make such alterations is hereby given, and the sureties to said bonds hereby waive the provisions of Sections 2819 and 2840, and each of them, of the Civil Code of the State of California.

15. That said second party and all subcontractors under it shall pay all their laborers, workmen, mechanics and employees on said work a salary or wage at least equal to the prevailing salary or wage for the same quality of service rendered to private persons, firms or corporations under similar employment, and which salary or wage shall not be less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the work is performed, and not less than the general prevailing rate of per diem wages for legal holiday and overtime work, and which salary or wage shall not be less than the stipulated rates contained in a schedule thereof which has been ascertained and determined by the Board of Directors of the first party and which is now on file with the Secretary of said Board and by reference incorporated herein, and made a part hereof, and a copy

of which is hereto appended and marked "Exhibit A." The said second party hereby agrees to forfeit as a penalty to the said first party, out of any moneys becoming due to it from the said first party, under the terms of this contract the sum of Ten ($10.00) Dollars for each laborer, workman or mechanic employed, for each calendar day, or portion thereof, such laborer, workman or mechanic is paid less than the said stipulated rates for work done under this contract, by it, or by any subcontractor under it in violation of Chapter 397 of the Laws of 1931 of the State of California, and that the first party is hereby authorized and directed, through its proper representatives, to withhold and retain from the said second party, or from the subcontractors under it all sums and amounts which shall have been forfeited pursuant to this stipulation, as the property of the said first party, as provided by Chapter 397 of the Laws of 1931 of the State of California, and any Act or Acts amendatory thereof; provided, however, that no sum shall be so withheld, retained or forfeited, except from the final payment, without a full investigation by either the Division of Labor Statistics and Law Enforcement of the State Department of Industrial Relations or by said Board of Directors.

16. That the said second party and any subcontractor or subcontractors under it, shall not knowingly employ or cause or allow to be employed upon the work, or upon any part of the work contemplated by this contract, any alien, except in cases of

extraordinary emergency caused by fire, flood, or danger to life or property, or except upon public, military or naval defenses or works in time of war; provided, however, that within thirty (30) days after any alien is permitted to work thereon due to such an extraordinary emergency, the contractor doing the work, or its duly authorized agent, shall file with the Board of Directors a report, verified by oath, setting forth the nature of the said emergency and containing the name of the said alien and each date he was permitted to work, and failure to file the said report within the said time shall be prima facie evidence that no such extraordinary emergency existed. The contractor and each subcontractor shall also keep, or cause to be kept, an accurate record showing the names and citizenship of all workers employed by him in connection with the said public work, which record shall be open at all reasonable hours to the inspection of the Board of Directors, its deputies and agents, and to the Chief of the Division of Labor Statistics and Law Enforcement of the State Department of Industrial Relations, his deputies and agents. The said second party hereby agrees to forfeit to the said first party, out of any moneys becoming due to it from the said first party, under the terms of this contract the sum of Ten ($10.00) Dollars for each alien knowingly employed in the execution of this contract, by it or by any subcontractor under it, upon said work herein specified, for each calendar day, or portion thereof, during which such alien is permitted or required to labor

in violation of the provisions of Chapter 398 of the Laws of 1931 of the State of California, and that the first party is hereby authorized and directed, through its proper representatives, to withhold and retain from the said second party, or from any subcontractor under it, all sums and amounts which shall have been forfeited pursuant to this stipulation, as the property of the said first party, as provided by Chapter 398 of the Laws of 1931 of the State of California, and any Act or Acts amendatory thereof; provided, however, that no sum shall be so withheld, retained or forfeited, except from the final payment, without a full investigation by either the Division of Labor Statistics and Law Enforcement of the State Department of Industrial Relations or by said Board of Directors.

17. That no laborer, workman or mechanic employed at any time by the said second party, or by any subcontractor or subcontractors under it, upon the work or upon any part of the work contemplated by this contract, shall be required or permitted to work thereupon more than thirty hours during any one calendar week, except in cases of extraordinary emergency caused by fire, flood or danger to life or property, or except to work upon public military or naval defenses or works in time of war; provided, however, that within thirty (30) days after any employee is permitted to work over thirty hours during any one calendar week due to such extraordinary emergency, the contractor or its duly authorized agent shall file with the Board of

Directors of the first party a report verified by oath setting forth the nature of the said emergency, which report shall contain the name of said worker and the hours worked by him during said week, and failure to file the said report within the said time shall be prima facie evidence that no extraordinary emergency existed. The contractor and each subcontractor shall also keep an accurate record showing the names and actual hours worked of all workers employed by him in connection with the said public work, which record shall be open at all reasonable hours to the inspection of the Board of Directors of the first party or its deputies or agents, and to the Chief of the Division of Labor Statistics and Law Enforcement of the Department of Industrial Relations, his deputies or agents. The said second party hereby agrees to forfeit as a penalty to the said first party, out of any moneys becoming due to it from the said first party, under the terms of this contract, the sum of Ten ($10.00) Dollars for each laborer, workman or mechanic employed in the execution of this contract by said second party, or by any subcontractor under said second party, for each and every calendar day of each week during which said laborer, workman or mechanic is required or permitted to labor more than thirty hours in violation of the provisions of Section 653c-1 of the Penal Code of the State of California, and that the said first party is hereby authorized and directed through its proper representatives, to withhold and retain from the said second

party, or from the said subcontractors under it, all sums and amounts which shall have been forfeited pursuant to this stipulation, as the property of the said first party, as provided for by Section 653c-1 of the Penal Code of the State of California, and any Act or Acts amendatory thereof; provided, however, that no sum shall be so withheld, retained or forfeited, except from the final payment, without a full investigation by either the Division of Labor Statistics and Law Enforcement of the State Department of Industrial Relations or by said Board of Directors.

18. That only materials and supplies substantially produced in the United States shall be used. In accordance with Chapter 226 of the Laws of 1933, only such unmanufactured articles, materials and supplies as have been mined or produced in the United States and only such manufactured articles, materials and supplies as have been manufactured in the United States, substantially all from articles, materials and supplies mined, produced or manufactured, as the case may be, in the United States shall be used in the performance of the contract. If the contractor shall fail to comply with this provision of the Laws of 1933, he shall not be awarded any contract to which this act applies by the first party for a period of three years from the date of such violation.

19. That said Joint Highway District shall not in any way or manner be answerable or suffer loss, damage, expense or liability for any loss or damage

that may happen to said highway, highway tunnel, the appurtenances thereof, or any part thereof, or in, or about the same during its construction and before acceptance, and the said second party shall assume all liabilities of every kind or nature arising from said work, either by accident, negligence or any cause whatever; and shall hold the first party harmless from all liability of every kind and nature arising from accident, negligence or any cause whatever; save and except in the event of damage to said tunnel, shaft or any other underground structure comprising a portion of the work to be performed under this contract, resulting from an earthquake, the second party shall not be liable for any expense necessary to restore such tunnel, shaft or underground structure to a condition equivalent to that which existed prior to the occurrence of said earthquake, in excess of the sum of Five Thousand ($5,000) Dollars; provided that the second party shall be responsible for and shall repair at its own cost and expense any such damage not discovered and reported to the District Engineer by the second party in writing within forty-eight (48) hours after its occurrence; and provided further, that such repair work directly due to earthquake action discovered and reported as herein provided for in excess of Five Thousand ($5,000) Dollars for each earthquake, will be paid for as extra work except for such portions thereof as can be fairly classified under appropriate items of the contract, which portions shall be paid for at the

unit prices hereinbefore set forth; that no payment shall be made by the first party to the second party for loss of time or extra cost due to delays resulting directly or indirectly from such cause. If completion of the whole work is delayed due to earthquake damage, an extension of time shall be granted to the second party as set forth in section 4 of the specifications.

The term "earthquake" as used herein shall be limited to seismic disturbances recorded by recognized observatories in Northern California which have an intensity at the work of VII or more on the Rossi-Forel seismic intensity scale, and for the purposes of this proviso, any series of such seismic disturbances occurring within any one twenty-four (24) hour period shall be considered as a single earthquake.

20. The following rules and regulations adopted by the Federal Emergency Administration of Public Works, (hereinafter called the "Administrator") to carry out the purposes and control the Administration of Title II of the National Industrial Recovery Act, are required to be and form a part, of all the construction contracts on projects to which a grant has been made under the terms of said Act, and a grant having been made by the United States under the terms of said Act to the project for which this is the construction contract, the same are hereby made a part hereof, binding on all parties to this contract, to-wit:

1. (a) Convict labor.—No convict labor shall be employed on the project, and no materials manufactured or produced by convict labor shall be used on the project.

(b) Thirty-hour week.—Except in executive, administrative, and supervisory positions, so far as practicable and feasible in the judgment of the Government Engineer, no individual directly employed on the project shall be permitted to work more than 8 hours in any 1 day nor more than 30 hours in any one week:

Provided, That this clause shall be construed to permit working time lost because of inclement weather or unavoidable delays in any 1 week to be made up in the succeeding 20 days.

2. Wages.—(a) All employees directly employed on this work shall be paid just and reasonable wages which shall be compensation sufficient to provide, for the hours of labor as limited, as standard of living in decency and comfort. Such wages shall in no event be less than the minimum hourly wage rates for skilled and unskilled labor prescribed by the Administrator for the zone or zones in which the work is to be done, viz:

Skilled labor, One and 10/100ths ($1.10) Dollars;

Unskilled labor, 45/100ths ($0.45) Dollars.

(b) In the event that the prevailing hourly rates prescribed under collective agreements or understandings between organized labor and employers in effect on April 30, 1933, shall be above the minimum rates specified above, such agreed

wage rates shall apply: Provided, That such agreed wage rates shall be effective for the period of this contract, but not to exceed 12 months from the date of the contract.

(c) The above designated minimum rates are not to be used in discriminating against assistants, helpers, apprentices, and serving laborers who work and serve skilled journeymen mechanics and who are not to be termed as "unskilled laborers."

(d) The provisions of this contract relating to hours and minimum wage rates for labor directly employed on the project shall for the purposes of this contract, to the extent applicable, supersede the terms of any code adopted under Title I of the Act permitting longer hours or lower minimum wage rates.

(e) All employees shall be paid in full not less often than once each week and in lawful money of the United States, unless otherwise permitted by the Government Engineer, in the full amount accrued to each individual at the time of closing of the pay roll, which shall be at the latest date practicable prior to the date of payment, and there shall be no deductions or rebates on account of goods purchased, rent, or other obligations, but such obligations shall be subject to collection only by legal process: Provided, however, That this clause shall not be construed to prohibit the making of deductions for premiums for compensation and medical aid insurance, in such amounts as are authorized by the laws of the State of California to be paid by employees, in those cases in which, after the mak-

ing of the deductions, the wage rates will not be lower than the minimum wage rates herein established.

(f) A clearly legible statement of all wage rates to be paid the several classes of labor employed on the work, together with a statement of the deductions therefrom for premiums for workmen's compensation and/or medical aid insurance authorized by the laws of the State of California, should such deductions be made, shall be posted in a prominent and easily accessible place at the site of the work, and there shall be kept a true and accurate record of the hours worked by and the wages, exclusive of all authorized deductions, paid to each employee, and the engineer inspector shall be furnished with a sworn statement thereof on demand.

(g) The Board of Labor Review (herein called the "Board") shall hear all labor issues arising under the operation of this contract and such issues as may result from fundamental changes in economic conditions during the life of this contract.

(h) The minimum wage rates herein established shall be subject to change by the Administrator on recommendation of the Board. In the event that, as a result of fundamental changes in economic conditions, the Administrator, acting on such recommendation, from time to time establishes different minimum wage rates (referred to in paragraph 2 (a), (b), and (c) hereof) all contracts for work on the project shall be adjusted accordingly by the parties thereto so that the contract price to

the contractor under any contract or to any subcontractor under any subcontract shall be increased by an amount equal to any such increased cost, or decreased in an amount equal to such decreased cost.

(i) Engineers, architects, and other professional and subprofessional employees engaged on the project shall receive the prevailing local rates for the various types of service to be rendered, except that in no case shall they receive less than the hourly rates set for the highest paid class of skilled labor directly employed on the project.

(j) Superintendents and foremen shall receive an hourly rate of compensation at least equal to the hourly wage rate paid employees who work under their direction, up to 40 hours per week.

In the event that superintendents or foremen work more than 40 hours per week, they shall receive at least 50 per cent more than the weekly wage, on a 30-hour basis, of the men working under their immediate direction.

The above are minimum rates only, and shall be determined prior to entering on the work.

3. (a) Labor Preferences.—Section 206 of the National Industrial Recovery Act establishes preferences to be followed in the employment of labor. As between fully qualified applicants for the positions these preferences will be observed as follows:

1. Ex-service men with dependents who are residents of Joint Highway District No. 13.

2. Other citizens and aliens who have declared their intention of becoming citizens who are bona fide residents of Joint Highway District No. 13.

3. Ex-service men with dependents who are bona fide residents of the State of California.

4. Other citizens and aliens who have declared their intentions of becoming citizens who are bona fide residents of the State of California.

(b) Employment services.—To the fullest extent possible, labor required for the project and appropriate to be secured through employment services shall be chosen from the lists of qualified workers submitted by local employment agencies designated by the United States Employment Service: Provided, however, That union labor, skilled and unskilled, shall not be required to register at such local employment agencies, but, if such labor is desired by the employer, shall be secured in the customary ways through recognized union locals. In the event, however, that employers who wish to employ union labor are not furnished with qualified union workers by the union locals which are authorized to furnish such labor residing in the locality within 48 hours (Sundays and holidays excluded) after request is filed by the employer, all labor shall be chosen from lists of qualified workers submitted by local agencies designated by the United States Employment Service. In the selection of workers from lists prepared by such employment agencies and union locals, the labor preferences provided in section (a) of this paragraph 3 shall be observed,

and preference shall be given to those unemployed at the date of registration who, at the date of selection, have no other available employment.

(c) Compliance with Title 1 of the Act.—The following sections 7 (a) (1) and 7 (a) (2) of Title 1 of the Act shall be observed:

(1) That employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection; (2) that no employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing or assisting a labor organization of his own choosing.

4. Human labor.—The maximum of human labor shall be used in lieu of machinery wherever practicable and consistent with sound economic and public advantage; and to the extent that the work may be accomplished at no greater expense by human labor than by the use of machinery, and labor of requisite qualifications is available, such human labor shall be employed.

5. Compensation insurance.—Every employer of labor shall provide, if permitted by the laws of the State of California, adequate workmen's compensation insurance for all labor employed by him on

the project who may come within the protection of such laws and shall provide, where practicable, employers' general liability insurance for the benefit of his employees not protected by such compensation laws, and proof of such insurance satisfactory to the Government engineer shall be given. Where it is not permitted by law that such insurance be provided, some method satisfactory to the Administrator must be provided by which the employees may, by paying the entire amount of the premiums, derive a similar protection.

6. Persons entitled to benefits of labor provisions.—There shall be extended to every person who performs the work of a laborer or of a mechanic on the project or on any part thereof the benefits of the labor and wage provisions of this contract, regardless of any contractual relationship between the employer and such laborer or mechanic. There shall be no discrimination in the selection of labor on the ground of race, creed, or color.

7. Withholding payment.—Under all construction contracts, said Joint Highway District No. 13 of the State of California, may withhold from the contractor so much of accrued payments as may be necessary to pay to laborers or mechanics employed on the work the difference between the rate of wages required by this contract to be paid to laborers or mechanics on the work and the rate of wages actually paid to such laborers or mechanics.

8. Accident prevention.—Reasonable precau-

tions shall at all times be exercised for the safety of employees on the work and applicable provisions of the Federal, State, and municipal safety laws and building and construction codes shall be observed. All machinery and equipment and other physical hazards shall be guarded in accordance with the safety provisions of the Manual of Accident Prevention in Construction of the Associated General Contractors of America, unless and to the extent that such provisions are incompatible with Federal, State, or municipal laws or regulations.

9. (a) N. R. A. materials.—So far as articles, materials, and supplies produced in the United States are concerned, only articles, materials, and supplies produced under codes of fair competition under Title 1 of the Act, or under the President's Reemployment Agreement, shall be used in the performance of this work, except when the Government engineer certifies that this requirement is not in the public interest or that the consequent cost is unreasonable.

(b) Local preference.—So far as practicable, and subject to the provisions of section (a) of this paragraph 9, preference shall also be given to the use of locally produced materials if such does not involve higher cost, inferior quality, or insufficient quantities, subject to the determination of the Government engineer; but there shall be no requirement providing price differentials for, or restricting the use of materials to, those produced within the Nation or State.

10. (a) Inspection of records.—The Administrator, through his authorized agents, shall have the right to inspect all work as it progresses, and shall have access to all pay rolls, records of personnel, invoices of materials, and any and all other data relevant to the performance of this contract. There shall be submitted to the Administrator, through his authorized agents, the names and addresses of all personnel and such schedules of the cost of labor, costs and quantities of materials, and other items, supported as to correctness by such evidence as, and in such form as, the Administrator, through his authorized agents, may require. The submission and approval of said schedules, if required, shall be a condition precedent to the making of any payment under the contract.

(b) There shall be provided for the use of the engineer inspector such reasonable facilities as he may request. In case of dispute the Government engineer shall determine the reasonableness of the request.

11. (a) Reports.—Every employer of labor on the project shall report within 5 days after the close of each calendar month, on forms to be furnished by the United States Department of Labor, the number of persons on their respective pay rolls directly connected with the project, the aggregate amounts of such pay rolls, and the man-hours work, wage scales paid to the various classes of labor, and the total expenditures for materials. Two copies of each of such monthly reports are to be furnished to

the Government engineer, and one copy of each to the United States Department of Labor.

The contractor under any construction contract shall also furnish to said Joint Highway District No. 13 of the State of California, to the Government Engineer, and to the United States Department of Labor the names and addresses of all subcontractors on the work at the earliest date practicable.

(b) Copies, in triplicate, of all pay rolls for work performed under this contract, whether done by the contractor or under a subcontract or otherwise, prepared on approved forms and certified under oath by the contractor or his authorized representative, shall be filed with the District Engineer, within five (5) days after the close of each calendar month, showing the name of each employee, the State and county of his bona fide residence, the agency from which his name was obtained, whether or not an ex-service man with dependents, the class of work performed, the hours worked each day, the total hours for each calendar week, the total hours for the month, the wage rate paid, the total amount earned, deductions for board and lodging, if any, and the net amount paid.

The pay rolls shall be divided into three (3) sections under which shall be appropriately grouped:

(1) Executive, administrative and supervisory employees.

(2) Skilled labor.

(3) Unskilled labor.

Each of these classifications shall be grouped separately and the totals for each group shown under the following headings: hours per week, hours for the month, amount earned, deductions and net amount paid.

12. Signs.—Signs bearing the legend Public Works Project No. 2231 shall be erected in appropriate places at the site of the project.

13. All reasonable rules and regulations which the Public Works Administration may prescribe toward the effectuation of the matters covered by paragraphs 1 to 12, inclusive, shall be observed in the performance of the work.

14. Subcontractors.—(a) Appropriate provisions shall be inserted in all subcontracts relating to this work to insure the fulfillment of all provisions of this contract affecting such subcontractors, particularly paragraphs 1 to 13, inclusive.

(b) No bid shall be received from any subcontractor who has not signed U. S. Government Form No. P. W. A. 61, revised (March, 1934).

15. Termination for breach.—In the event that any of the provisions of subdivisions 1 to 14 inclusive, of this paragraph 20 of this contract, are violated by the contractor under the construction contract or by any subcontractor under any subcontract on the work, said Joint Highway District No. 13 of the State of California, may, subject to the approval of the Government Engineer, and upon request of the Administrator, shall terminate the contract by serving written notice upon the contractor of its intention to terminate such contract, and, un-

less within 10 days after the serving of such notice such violation shall cease, the contract shall, upon the expiration of said 10 days, cease and terminate. In the event of any such termination said Joint Highway District No. 13 of the State of California may take over the work and prosecute the same to completion or otherwise for the account and at the expense of the contractor and/or such subcontractor, and the contractor and his sureties shall be liable to said Joint Highway District No. 13 of the State of California for any excess cost occasioned said Joint Highway District in the event of any such termination, and said Joint Highway District may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work, and necessary therefor. This clause shall not be construed to prevent the termination for other causes provided in the construction contract.

16. Definitions.—The term "Act" as used herein refers to the National Industrial Recovery Act. The term "Government Engineer" as used herein shall mean the State engineer (P. W. A.) or his duly authorized representative, or any person designated to perform his duties or functions under this agreement by the Administrator. The term "engineer inspector" as used herein refers to State engineer inspectors, resident and assistant resident engineer inspectors, and supervising engineers, appointed by the Administrator. The term "materials" as used herein includes, in addition to materials incorporated in the project used or to be used in the opera-

tion thereof, equipment and other materials used and/or consumed in the performance of the work.

21. The contractor shall comply with each approved code of fair competition to which he is subject, and if he is engaged in any trade or industry for which there is no approved code of fair competition, then as to such trade or industry with an agreement with the President under Section 4 (a) of the National Industrial Recovery Act (President's Reemployment Agreement), and the said Joint Highway District No. 13 shall have the right to cancel this contract for failure to comply with this provision and may have the work called for by this contract otherwise performed at the expense of the contractor, and the contractor shall not accept or purchase for the performance of this contract or enter into any subcontracts for any articles, materials, or supplies in whole or in part produced or furnished by any person who shall not have certified that he is complying with and will continue to comply with each code of fair competition which relates to such articles, materials, or supplies, and/or in case there is no approved code for the whole or any portion thereof then to that extent with an agreement with the President as aforesaid.

22. Any person falsely certifying as to compliance as aforesaid who submits any such proposal, bid, contract, or subcontract, or accepts any purchase order, may be punished as provided in section 10 (a) of the National Industrial Recovery Act, by a fine of not to exceed Five Hundred ($500.00) Dollars or imprisonment not to exceed

six months, or both, and in event of any such false certification by any such person, any contract, subcontract, or purchase order to which he is party secured by or in furtherance of any such proposal or bid may be canceled by the other party thereto, and the unfinished portion thereof completed at the expense of the person guilty of such false certification and his sureties, if any.

23. Whenever a dispute shall arise between any agency of the said Joint Highway District No. 13, and any bidder, contractor, supplier or other person as to compliance with any code of fair competition or with an agreement with the President as aforesaid in connection with any proposal, bid, contract, subcontract, or purchase order mentioned herein, the Administrator for Industrial Recovery, or such agency as he shall designate, shall decide such dispute, and, for the purposes of action under the President's Executive order, such decision shall be final and conclusive; but the determination of such agency of the said Joint Highway District No. 13 shall be effective for all purposes pending such decision.

24. It is understood and agreed by both parties hereto that the per diem wages listed in Exhibit "A", attached hereto, are based on the customary eight (8) hour working day, and that when less time is worked per day, the amount paid therefor shall be the hourly rate set forth in said Exhibit "A", multiplied by the number of hours worked.

25. In the event that any provision of this contract is in conflict with the final specifications for the work to be done hereunder, adopted March 30, 1933, and the amendments and supplements adopted on January 9, 1934, and on April 3, 1934, respectively, by the Board of Directors of said Joint Highway District No. 13 of the State of California, it is understood and agreed that the provisions of this contract shall govern, and shall supersede said specifications in every case where such conflict or conflicts exist.

In Witness Whereof, the said parties hereto have caused their respective corporate names to be signed and their corporate seals to be affixed by their respective Presidents and Secretaries, thereunto duly authorized, the day and year first above written.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

By THOMAS E. CALDWELL
President

By HARRY M. STOW
Secretary

First Party

SIX COMPANIES OF CALIFORNIA, a corporation,

By A. D. BECHTEL
President

By EDGAR KAISER
Secretary

Second Party

Exhibit A

RESOLUTION ASCERTAINING AND DETERMINING GENERAL PREVAILING RATE OF PER DIEM WAGES TO BE PAID ON THE PROJECT OF JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA.

Whereas this Board of Directors is about to call for bids for the construction of the project of Joint Highway District No. 13 of the State of California, including construction of a highway, highway tunnel and approaches with appurtenant structures in the said District,

Now, Therefore, after an investigation of the general prevailing rate of per diem wages paid in the Counties of Alameda and Contra Costa, the locality in which the work is to be performed, for each craft or type of workman or mechanic needed to execute the contract for the project of the District, it is hereby

Resolved, that the following schedule of rates of per diem wages is hereby adopted, fixed, ascertained and established to be paid by the Contractor and subcontractors on said project for each craft or type of workman or mechanic employed to execute the contract, and that said schedule is a schedule of the general prevailing rate of per diem wages in said locality, to-wit:

Position	Per Diem Rate	Hourly Rate
Blacksmith	$ 8.80	$ 1.10
Carpenter	8.80	1.10
Cement gun operator	6.00	.75
Compression engineer	10.00	1.25
Concrete finisher, pavement	8.80	1.10
Concrete laborers	6.24	.78
Concrete mixer operator	10.00	1.25
Drill operator	6.00	.75
Electrical worker	8.80	1.10
Grader operator	6.00	.75
Labor, unskilled	4.80	.60
Machinist	8.80	1.10
Mechanic	8.80	1.10
Painter	8.80	1.10
Plasterer	11.00	1.375
Plumber	8.80	1.10
Portable hoist engineer	10.00	1.25
Powder man	7.00	.875
Power shovel operator	10.00	1.25
Roller operator	9.00	1.125
Sheet metal worker	9.44	1.18
Steam fitter	10.00	1.25
Steel worker, reinforcing	9.00	1.125
Steel worker, structural	11.00	1.375
Subgrade finisher operator	6.00	.75
Teamster	6.00	.75
Tractor driver, 50 h.p. and under	7.00	.875
Tractor driver, over 50 h.p.	9.00	1.125
Truck driver, 2 yds.	5.50	.6875
Truck driver, 3 yds.	6.00	.75
Truck driver, 4 yds.	6.50	.8125
Truck driver, 5 yds.	6.50	.8125
Truck driver, 6 yds.	6.50	.8125
Not Otherwise Covered		
Skilled	$ 8.80	$ 1.10
Unskilled	3.60	.45

For laborers, workmen and mechanics employed thirty hours a week, the general prevailing rate for work on Sundays and all other legal holidays is

hereby fixed as the rate for the same craft or type of workman on days other than Sunday and legal holidays; provided, however, as the project for which said bids are to be called has received a grant of funds under the provisions of The National Industrial Recovery Act, and that all proceedings for the construction of said project are taken subject to rules and regulations of the Public Works Administration which has heretofore promulgated "Bulletin No. 2," paragraph (c) of Art. A of Section B of which provides as follows: "(c) No work shall be permitted on Sundays or legal holidays except in cases of emergency"; and that said Joint Highway District has applied for a waiver of the provisions of said paragraph (c) which has not been acted upon at the time of the adoption of this schedule of prevailing wages by said Joint Highway District; in the event said waiver is not obtained and said paragraph (c) remains in effect as to work on said project, that the general prevailing rate for work on Sundays and all other legal holidays is hereby fixed as and shall be at the rate of twice the rate fixed herein for the same craft or type of workman on days other than Sunday and legal holidays.

All overtime work shall be at the rate of one and one-half times the regular hourly rate for each hour of overtime worked for each craft or type of workman employed as hereinabove set forth.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. No. 20101-R. Plff's Ex. No. 16. Filed April 13, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

PLAINTIFF'S EXHIBIT No. 18

BOND FOR FAITHFUL PERFORMANCE

Know All Men by These Presents:

That we, Six Companies of California, a Nevada Corporation, herein referred to as "Contractor" as Principal, and Hartford Accident and Indemnity Company, a Connecticut Corporation, Fidelity and Deposit Company of Maryland, a Maryland Corporation, The Aetna Casualty and Surety Company, a Connecticut Corporation, Indemnity Insurance Company of North America, a Pennsylvania Corporation, American Surety Company of New York, a New York Corporation, Fireman's Fund Indemnity Company, a California Corporation, Maryland Casualty Company, a Maryland Corporation, United States Fidelity and Guaranty Company, a Maryland Corporation, The Fidelity and Casualty Company of New York, a New York Corporation, Glens Falls Indemnity Company, a New York Corporation, Standard Surety and Casualty Company of New York, a New York Corporation, Standard Accident Insurance Company, a Michigan Corporation, Pacific Indemnity Company, a California Corporation, Massachusetts Bonding and Insurance Company, a Massachusetts Corporation, Continental Casualty Company, an Indiana Corporation, and New Amsterdam Casualty Company, a New York Corporation, as Sureties, are held and firmly bound unto Joint Highway District No. 13 of the State of California, a public corporation of the State of Cali-

fornia, in the sum of One Million Eight Hundred Forty-two Thousand Dollars ($1,842,000.00), lawful money of the United States of America, for the payment whereof, well and truly to be made, we hereby bind ourselves, our heirs, administrators, successors and assigns, firmly by these presents, as follows:

The Principal and Hartford Accident and Indemnity Company, a Connecticut Corporation, as Surety, jointly and severally, in a sum equal to ten per centum (10%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Hartford Accident and Indemnity Company, a Connecticut Corporation, hereunder exceed the amount of One Hundred Eighty-four Thousand Two Hundred Dollars ($184,200.00);

The Principal and Fidelity and Deposit Company of Maryland, a Maryland Corporation, as Surety, jointly and severally, in a sum equal to ten per centum (10%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Fidelity and Deposit Company of Maryland, a Maryland Corporation, hereunder exceed the amount of One Hundred Eighty-four Thousand Two Hundred Dollars ($184,200.00);

The Principal and The Aetna Casualty and Surety Company, a Connecticut Corporation, as Surety, jointly and severally, in a sum equal to ten per centum (10%) of the total amount of each claim recoverable hereunder, but in no event shall

the aggregate liability of The Aetna Casualty and Surety Company, a Connecticut Corporation, hereunder exceed the amount of One Hundred Eighty-four Thousand Two Hundred Dollars ($184,200.00);

The Principal and Indemnity Insurance Company of North America, a Pennsylvania Corporation, as Surety, jointly and severally, in a sum equal to ten per centum (10%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Indemnity Insurance Company of North America, a Pennsylvania Corporation, hereunder exceed the amount of One Hundred Eighty-four Thousand Two Hundred Dollars ($184,200.00);

The Principal and American Surety Company of New York, a New York Corporation, as Surety, jointly and severally, in a sum equal to ten per centum (10%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of American Surety Company, a New York Corporation, hereunder exceed the amount of One Hundred Eighty-four Thousand Two Hundred Dollars ($184,200.00);

The principal and Fireman's Fund Indemnity Company, a California Corporation, as Surety, jointly and severally, in a sum equal to seven per centum (7%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Fireman's Fund Indemnity Company, a California Corporation, hereunder exceed

the amount of One Hundred Twenty-eight Thousand Nine Hundred Forty Dollars ($128,940.00);

The Principal and Maryland Casualty Company, a Maryland Corporation, as Surety, jointly and severally, in a sum equal to six and one-half per centum (6½%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Maryland Casualty Company, a Maryland Corporation, hereunder exceed the amount of One Hundred Nineteen Thousand Seven Hundred Thirty Dollars ($119,730.00);

The Principal and United States Fidelity and Guaranty Company, a Maryland Corporation, as Surety, jointly and severally, in a sum equal to six and one-half per centum (6½%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of United States Fidelity and Guaranty Company, a Maryland Corporation, hereunder exceed the amount of One Hundred Nineteen Thousand Seven Hundred Thirty Dollars ($119,730.00);

The Principal and The Fidelity and Casualty Company of New York, a New York Corporation, as Surety, jointly and severally, in a sum equal to five per centum (5%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Fidelity and Casualty Company of New York, a New York Corporation, hereunder exceed the amount of Ninety-two Thousand One Hundred Dollars ($92,100.00);

The Principal and Glens Falls Indemnity Company, a New York Corporation, as Surety, jointly and severally, in a sum equal to four and one-half per centum (4½%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Glens Falls Indemnity Company, a New York Corporation, hereunder exceed the amount of Eighty-two Thousand Eight Hundred Ninety Dollars ($82,890.00);

The Principal and Standard Surety and Casualty Company of New York, a New York Corporation, as Surety, jointly and severally, in a sum equal to four per centum (4%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Standard Surety and Casualty Company of New York, a New York Corporation, hereunder exceed the amount of Seventy-three Thousand Six Hundred Eighty Dollars ($73,680.00);

The Principal and Standard Accident Insurance Company, a Michigan Corporation, as Surety, jointly and severally, in a sum equal to four per centum (4%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Standard Accident Insurance Company, a Michigan Corporation, hereunder exceed the amount of Seventy-three Thousand Six Hundred Eighty Dollars ($73,680.00);

The Principal and Pacific Indemnity Company, a California Corporation, as Surety, jointly and severally, in a sum equal to four per centum (4%)

of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Pacific Indemnity Company, a California Corporation, hereunder exceed the amount of Seventy-three Thousand Six Hundred Eighty Dollars ($73,680.00);

The Principal and Massachusetts Bonding and Insurance Company, a Massachusetts Corporation, as Surety, jointly and severally, in a sum equal to four per centum (4%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Massachusetts Bonding and Insurance Company, a Massachusetts Corporation, hereunder exceed the amount of Seventy-three Thousand Six Hundred Eighty Dollars ($73,680.00);

The Principal and Continental Casualty Company, an Indiana Corporation, as Surety, jointly and severally, in a sum equal to two and one-half per centum (2½%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of Continental Casualty Company, an Indiana Corporation, hereunder exceed the amount of Forty-six Thousand Fifty Dollars ($46,050.00);

The Principal and New Amsterdam Casualty Company, a New York Corporation, as Surety, jointly and severally, in a sum equal to two per centum (2%) of the total amount of each claim recoverable hereunder, but in no event shall the aggregate liability of New Amsterdam Casualty

Company, a New York Corporation, hereunder exceed the amount of Thirty-six Thousand Eight Hundred Forty Dollars ($36,840.00).

The condition of the foregoing obligation is such that:

Whereas, said Contractor has been awarded and is about to enter into the annexed contract with the said Joint Highway District No. 13 of the State of California for the construction of a highway, highway tunnel and appurtenances in accordance with the final plans and specifications therefor adopted by the Board of Directors of said Joint Highway District No. 13 on the 30th day of March, 1933, and the amendments and supplements thereto adopted by said Board on the 9th day of January, 1934, and on the 3d day of April, 1934, and is required by said Joint Highway District to give this bond in connection with the execution of said contract;

Now, Therefore, if the said Contractor shall well and truly do and perform all of the covenants and obligations of said contract on its part to be done and performed at the time and in the manner specified therein, then this obligation shall be null and void, otherwise it shall be and remain in full force and effect. It is expressly agreed that any suit or suits that may be brought to enforce the obligation hereof may be commenced and prosecuted jointly and severally against all or any of the persons and parties named herein.

Provided, that any alterations in the work to be done, or the material to be furnished which may be made pursuant to the terms of said contract shall not in any way release the Contractor or the sureties hereunder, nor shall any extensions of time granted under the provisions of said contract release either the Contractor or sureties, and notice of such alteration or extensions of the contract is hereby waived by the sureties.

Witness our hands this 12th day of June, 1934.

SIX COMPANIES
OF CALIFORNIA,
a Nevada Corporation,
[Corporate Seal] By S. D. BECHTEL,
President,
W. E. WASTE,
Asst. Sec. & Asst. Treas.
Contractor.

HARTFORD ACCIDENT AND
INDEMNITY COMPANY,
a Connecticut corporation,
By A. C. POSEY,
Attorney-in-Fact.

FIDELITY AND DEPOSIT
COMPANY OF MARYLAND,
a Maryland Corporation,
By LELAND W. CUTLER,
Attorney-in-Fact,
VERNON G. PEIRSON,
Agent.

THE AETNA CASUALTY AND SURETY COMPANY,
a Connecticut Corporation,
By J. A. SWEARINGEN,
Resident Vice President,

Attest: R. F. LITTLE,
Resident Asst. Secretary.

INDEMNITY INSURANCE COMPANY OF NORTH AMERICA,
a Pennsylvania Corporation,
By HARRY C. MILLER,
Attorney-in-Fact.

AMERICAN SURETY COMPANY OF NEW YORK,
a New York Corporation,
By R. D. WELDON,
Resident Vice President,

Attest: B. DUCRAY,
Resident Assistant Secretary.

FIREMAN'S FUND INDEMNITY COMPANY,
a California Corporation,
By F. J. BUTCHER,
Attorney-in-Fact.

MARYLAND CASUALTY COMPANY,
a Maryland Corporation,
By W. G. KELSO,
Attorney-in-Fact.

UNITED STATES FIDELITY
AND GUARANTY COMPANY,
a Maryland Corporation,
By ERNEST W. COPELAND
Attorney-in-Fact,

THE FIDELITY AND
CASUALTY COMPANY
OF NEW YORK,
a New York Corporation,
By FRANK M. HALL,
Attorney.

GLENS FALLS INDEMNITY
COMPANY,
a New York Corporation,
By R. H. GRIFFITH,
Attorney.

STANDARD SURETY AND
CASUALTY COMPANY
OF NEW YORK,
a New York corporation,
By A. C. POSEY,
Attorney-in-Fact.

STANDARD ACCIDENT
INSURANCE COMPANY,
a Michigan Corporation,
By H. G. SHEEHY,
Attorney-in-Fact.

PACIFIC INDEMNITY
COMPANY,
a California Corporation,
By EARL A. DAVIS,
Attorney-in-Fact.

MASSACHUSETTS BONDING
AND INSURANCE
COMPANY,
a Massachusetts Corporation,
By J. R. McKINNEY,
Agent and Attorney-in-Fact.

CONTINENTAL CASUALTY
COMPANY,
an Indiana Corporation,
By B. F. CATOR,
Attorney-in-Fact.

NEW AMSTERDAM
CASUALTY COMPANY,
a New York Corporation,
By WALTER W. DERR,
Agent and Attorneyin-Fact.

State of California,
City and County of San Francisco—ss.

On this 12th day of June in the year one thousand nine hundred and thirty four before me, Lulu P. Loveland, a Notary Public in and for the City and County of San Francisco, State of California, residing therein, duly commissioned and sworn, personally appeared S. D. Bechtel and W. E. Waste known to me to be the President and Assistant Secretary-Assistant Treasurer, respectively, of the corporation that executed the within instrument, and also known to me to be the persons who executed

the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the same.

In witness whereof, I have hereunto set my hand and affixed my official seal at my office in the City and County of San Francisco, the day and year in this certificate first above written.

[Seal] LULU P. LOVELAND,
Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires December 8, 1934.

[Printer's Note: Parts of eight acknowledgments appear on the photostated exhibit which are undecipherable.]

State of California,
City and County of San Francisco—ss.

On this 12th day of June in the year one thousand nine hundred and thirty four before me J. G. Roberts a Notary Public in and for the said City and County of San Francisco residing therein, duly commissioned and sworn, personally appeared Frank M. Hall known to me to be the attorney of The Fidelity and Casualty Company of New York, the corporation that executed the within instrument and known to me to be the person who executed the said instrument on behalf of the Corporation therein named and acknowledged to me that such Corporation executed the same.

In witness whereof I have hereunto set my hand and affixed my official seal in the County of San Francisco the day and year in this certificate first above written.

[Seal] J. G. ROBERTS,
Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires October 29, 1937.

[Printer's Note: Parts of six acknowledgments appear on the photostated exhibit which are undecipherable.]

State of California,
City and County of San Francisco—ss.

On this 12th day of June in the year one thousand nine hundred and thirty-four, before me Con T. Shea, a Notary Public in and for the said County and State, residing therein, duly commissioned and sworn, personally appeared Walter W. Derr known to me to be the duly authorized Agent and Attorney-in-Fact of the New Amsterdam Casualty Company, the corporation whose name is affixed to the foregoing instrument; and duly acknowledged to me that he subscribed the name of the New Amsterdam Casualty Company thereto as Surety and his own name as Attorney-in-Fact.

In witness whereof, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

CON T. SHEA

Notary Public in and for said County and State.

[Endorsed]: Filed June 14th, 1934. Harry M. Stow, Secretary, by L. V. Eaton, Asst. Secty.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 18. Filed April 13, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

PLAINTIFF'S EXHIBIT No. 22

REPORT ON THE GEOLOGICAL CONDITIONS

along the line of the proposed new low tunnel highway between Alameda and Contra Costa Counties:

Proposed New Tunnel Road;

From Broadway to Temescal Creek Crossing,

Temescal Creek Crossing, Stas. 43+23 to 53+10,

Temescal Dam,

The Railroad Crossing,

From Temescal Creek Crossing to Tunnel Portal;

Proposed Highway Tunnel;

West Portal,
Monterey (Sobrante?) Sandstone,
Claremont Cherts,
The Orinda Formation,
Tunnel Earthquake Relations,
Tunnel in General,
From the East Portal of Tunnel to Station 156+50.

By PROFESSOR GEORGE D. LOUDERBACK
Consulting Geologist

June 23, 1932

Geological Report

Berkeley, California
June 23, 1932

Mr. George A. Posey, District Engineer
Joint Highway District No. 13
454 Fifth Street, Oakland, California.

Dear Sir:

Proposed New Tunnel Road.

The following is a report on the geological conditions along the line of the proposed new low tunnel highway between Alameda and Contra Costa Counties, based on observations made on the ground surface along and in the vicinity of the proposed highway and tunnel line, with the aid of such clearing, cuts and artificial openings as were made up to June 18, 1932, supplemented by laboratory studies of some of the collected material. The proposed line is that indicated on the map entitled: Joint Highway District No. 13, Topography from Broadway to West Portal, Nov. 6, 1930, and corresponding profile dated March, 1931, and on the plan and profile of tunnel dated May, 1932, and in geological cross section dated July 7, 1930.

From the geological standpoint the proposed highway and tunnel appear to be quite feasible and the line chosen is probably as good a line as could have been selected to accomplish the desired results.

Naturally, the geological conditions vary along the route, different portions possessing local characteristics of rock type or structure that require special consideration or treatment by the engineer.

I shall describe and comment on these features in some detail in the order in which they would be encountered if one started from Broadway, Oakland, and followed the line of the proposed highway to the vicinity of the east portal of the tunnel. Locations of the conditions described will be indicated by reference to station numbers, corresponding to the stationing of the maps and profiles referred to above.

From Broadway to Temescal Creek Crossing.

At present there is a cliff-like cut in the bedrock along the southeast side of Broadway where the proposed new highway is to take off. From the junction of Brookside Avenue a basic igneous rock (greenstone) in the Franciscan formation extends southwestward along Broadway about 300 feet. It is largely weathered to a brown color. For about 150 feet from Brookside Avenue it is rather massive. Beyond this it is badly sheared and the shearing has involved and displaced small masses of shale. The rock here is weak and on steep slopes tends to slump. It has at times slumped down over the sidewalk and the detritus has been artificially removed. Farther along a small mass of chert is exposed which stands well, but picks down rather easily because of numerous poorly cemented closely spaced fractures. It is followed southwesterly by Franciscan sandstones and shales which also have suffered more or less shearing.

The various rock types and structures mentioned will all be encountered in the proposed cut for the

new road for several hundred feet from Broadway. In my opinion the material involved will make a satisfactory general foundation for the new road in the cut as planned. I believe that the only trouble that may be experienced would be the result of any steep exposed face in badly sheared rock. This would tend to slump, especially when wet. On the southeast side where a slope up from the road would be left by the cut, rock material might slump down onto the road. If steep slopes in badly sheared material were left below the road, as might happen on its northwest side, they might cause the edge of the pavement to be undermined and crumble away. As to whether the badly sheared parts of the bedrock would be exposed in such a way by the proposed cut as to make possible such minor troubles, can best be determined when the excavation is completed. Appropriate precautions can then be taken to prevent possible slumping. The distribution of rock types and shearing is too irregular to make it worthwhile trying to determine possible location of such weak zones before the actual cut is made.

Similar rocks are exposed in a quarry off of Brookside avenue, stations 15 to 17. The west wall of the quarry is of Franciscan chert with a practically vertical dip, and with strike along the quarry wall. It stands well on a steep slope. The rest of the quarry is mostly in Franciscan sandstones and shales, irregularly sheared, and showing here and there patches of greenstone, and chert. A small patch of chert occurs at the east end of the quarry

face curve (Sta. 17). Beyond the quarry, road cuts expose Franciscan sandstone and shale to about Station 18. Farther along the bedrock is covered, first by detritus (hill waste) of Franciscan rock types, and finally by alluvial wash down Rosewood Court gulch.

Near Stations 22+50 is a pit in badly sheared Franciscan sandstone and shale.

It is possible that Rosewood Court is a zone of faulting—a subordinate fracture zone related to the Hayward fault. This is suggested by the physiography, and by the fact that this feature is parallel to the Haywards fault zone and only about 900 feet distant from it. Proof of this might be difficult. It could possibly be determined by a pit or trench carried into bedrock through the alluvium of Rosewood Court.

The slope above Golden Gate Avenue (between Stations 23+50 and 26+00) in which a cut is proposed, exposes somewhat sheared Franciscan sandstone and shale with some spots of greenstone and narrow belts of sheared serpentine. This serpentine, as exposed, is not the common bouldery type of sheared serpentine; the shearing has produced a parallel shale-like structure. The rock types here, as near Broadway, are so irregularly distributed and sheared through one another that no prediction can be made as to the exact location of the separate types in the final cut. The same conditions may be encountered here as were outlined for the cut just off of Broadway. In addition it may be said that

particular attention should be given to the serpentine which has a tendency to cause the sliding over it of the associated rock material, especially when wet; and also to move itself.

From about Station 26 to Station 28, the proposed highway line traverses a grassy hillside field without rock exposures. It is undoubtedly underlain by rocks of the Franciscan formation which are probably similar to those found in the slopes above Golden Gate avenue (Sta. 23+50 to 26).

The steep hill slope between Stations 29 and 32 is apparently mostly in Franciscan sandstone, which, near the surface, is weathered brown, is moderately soft and easily broken. It is somewhat sheared. It stands at a rather steep slope, and will probably yield a good foundation in the cut. A pit near Station 29 and at the top of the slope, shows the nature of the weathered sandstone. Lower down the slope firmer sandstone is encountered, and the cut will probably expose firmer material than is exposed at the surface.

The fill from Station 32 to Station 35+30 will be built on a natural slope that is underlain chiefly if not wholly by Franciscan sandstone. Near Station 33+50 occurs an exposure of fairly tough hard sandstone. Beyond, it is apparently softer.

The cut from Station 35+30 to Station 43+23 will be chiefly or wholly in Franciscan sandstone. A little beyond Station 41 is a pit which exposes weathered brown sandstone. The actual cut will probably expose firmer rock. Insofar as the road is

located on cut ground it will have a stable and satisfactory rock foundation. In the approach to this cut and to the cut west of Station 31, the natural hill slope is steep, and there will naturally be a tendency for the fill to settle or move down with respect to the bedrock exposed in cut. This is a not unusual condition where an earth fill is placed against a fairly steep slope of solid rock, and yet it is sometimes overlooked in construction.

It looks as if there had been some sliding at the northwest end of the Station 39+41 hill, but no fresh evidence of such action was observed, and it does not look as though it would threaten the stability of the fill.

The rocks become firmer and stronger as one goes southeastward into the ridge that bounds Temescal Creek valley on the southwest, but where the road is to cross appears to be very satisfactory as a bedrock foundation.

Temescal Creek Crossing,
Station 43+23 to Station 53+10.

This part of the valley of Temescal Creek is well recognized as a fault line valley, eroded in the shear zone of the "Hayward" fault. It is evident that the Hayward fault has been in existence for a long period of time, and that during this period the earth's crust has been displaced along the fault many times. The total number of movements and the intervals between these movements cannot be determined even approximately on the basis of our

present knowledge, but the total horizontal displacement, the summation of the small movements that have taken place from time to time, is probably not less than a half a mile. Each of the individual movements of displacement probably gave rise to an earthquake. The last strong earthquake that has been referred to the Hayward fault occurred in 1868. Many small shocks recorded by seismographs, sometimes actually felt by human beings, but giving rise to no damage, have occurred from time to time since that date. The Hayward fault is what is known as an "active" or "live" fault and future movements can be reasonably expected to occur along it, although at present the time of the next strong movement cannot be predicted with any certainty.

If any strong displacement should occur along the Hayward fault in the valley of Temescal Creek, any structure extending across this valley would be subject to two kinds of disturbances: 1) Actual rupture and displacement of the ground along the fault line, and 2) shaking by the resultant earthquake.

1) Throughout the known history of the Hayward fault, the prevailing displacement has been such that the country to the west of the fault has moved in a northerly direction with respect to the country on the east side of the fault. The magnitude of the horizontal displacement at any one time of active movement is not known. It may be recalled that at the time of the strong earthquake in

1906, horizontal displacements along the San Andreas fault, which shows a similar type of movement to that of the Hayward fault, varied along the fault trace from 0 to a maximum of 21 feet.

Observations along the San Andreas fault give us suggestions as to how a movement on the Hayward fault would probably express itself at the surface of the earth. Firstly, although the San Andreas shear zone is sometimes very wide, the movement was not distributed throughout the shear zone, but generally broke cleanly along a definite line that cut the surface sharply as if a furrow had been plowed across a field. Judging from this the break will probably be a sharp one, and the position of the line of rupture within the shear zone—or even outside of it—cannot be predicted. In other words, in case of a movement along the Hayward fault the line of surface rupture, although it is likely to occur within the limits of Temescal valley, may break through any part of the valley cross section. Secondly, the ground to the west of the break will probably move bodily in a northerly direction with respect to the ground to the east of the break. As the observations are purely relative, the actual movement may be southerly on the east side, or both sides may actually move in opposite directions. The practical result is locally the same whatever the distribution of absolute displacement between the two sides may be. At the end of the movement a point on the west side of the break will be distant from an originally adjoining point on the east side

by a number of feet representing the total horizontal displacement—as, for example, in the 1906 movement along the San Andreas fault, the road across the valley of Tomales Bay, from Pt. Reyes Station going to Inverness, suffered a total displacement of 21 feet, the roadbed to the west of the break then lying 21 feet from corresponding parts of the roadbed east of the break and in a northerly direction.

No known human structure can prevent this movement of the earth's crust. The effect on a structure resting on the ground and crossing the line of fracture will depend on the nature of the structure. A strong, strongly held together, unit structure might be warped, rotated, or otherwise disturbed without fracture. A roadbed or masonry wall, will normally be fractured and carried by its foundation, and suffer the same type of displacement and to the same extent as the ground upon which it rests.

An earth-rock embankment, or earth-rock fill such as is intended for the new road, if built with reasonable stability, would probably suffer as little serious damage as any man-made structure. It would certainly suffer displacement corresponding to that of the ground, and any pavement would be broken or shattered along or near the line of displacement. But it should not collapse as a bridge might whose piers were displaced, and it could be repaired at a cost of only a small fraction of the original cost of the valley crossing.

It may be well to call attention to the fact that liability to damage from this cause is not peculiar to the route chosen. Any other route that might be selected, to connect Oakland or Berkeley through the hills with the country to the east would have to cross the Hayward fault.

For completeness sake it may be pointed out that in the geological growth of the Berkeley Hills, displacements with vertical components have been involved. Occasionally these have acted to displace the rocks along the Hayward fault zone although some stretches along that zone show no displacements. Whether these movements have taken place simultaneously with the movements of horizontal displacement along the fault is not known. In any case the actual vertical displacements of a fault-like nature along the Hayward fault zone are in their totality only a small fraction of the horizontal displacements—from 0 to possibly not over 20%. If in the course of a fault movement affecting the valley of Temescal Creek a vertical component is involved, it will probably be of such a nature that the ground west of the break will be depressed with respect to that east of the break (or that east will be elevated with respect to that west). If that should happen it would be necessary to reestablish a grade with regard to the road on the two sides of the break. I believe that it is not likely to be a very serious matter, if it occurs at all.

2) In regard to the shaking movements of an earthquake that may have its origin on the Hay-

ward fault, it may be pointed out that such movement would not be limited to the vicinity of the fault trace, but would extend out in all directions, affecting a surface area the magnitude of which would depend on the severity of the originating shock. At the surface of the earth the destructive effects might not be strongest along the trace of the fault, but at some distance, even miles, away. In planning the road and appurtenant structures, it should be taken for granted that any part or all of them may be subject to strong earthquake shock. In connection with the crossing of the valley of Temescal Creek, it is probable that a good earth-rock fill with stable side slopes, and well drained, would probably not be injured at all by even a severe earth-quake shock.

Temescal Dam

Temescal dam extends across the valley of Temescal Creek a short distance above the proposed new roadway. It is an old structure, probably originally built as a lower dam over 60 years ago, and later raised and broadened. When the first plans were made for the new tunnel road, it appeared that a satisfactory and economical crossing of the valley could be made by using the dam as base for the road fill. The East Bay Municipal Utility District which had recently acquired the dam from the East Bay Water Company was agreeable to the project but could find in the files no record of the mode of construction or history of the old dam, which is said to

have been originally built by the pioneer, Mr. Chabot. It was necessary therefore to put down a series of test holes to determine the composition and condition of the dam.

Altogether, 18 holes are put down, varying from 25½ to 63½ feet in depth. Samples of material were collected and studied in the laboratory and logs prepared for all the wells, in each case showing depths and nature of materials encountered, and in a number of cases the results of mechanical analyses of the samples. A contour map of the dam and its surroundings shows the location of the test holes. The map and test hole logs are attached to the present report as an appendix.

The borings show the dam to be made up largely of hydraulically filled material derived chiefly from the northeast side of the valley; a smaller amount from the southwest side. A series of dikes are recognizable, built up to form basins into which material was sluiced. At intervals in the test holes, clay layers are found that definitely represent the slow settling from the muddy water overlying the directly sluiced-in fills in the basins. These layers of clay interfere with the passage of water vertically within the dam; but when moist they produce roughly horizontal soft plastic layers in the fill.

The lower layers of fill are largely derived from serpentine country while the upper layers are chiefly from the rhyolitic talus and hill waste, so abundant on the upper slopes of the northeast side of the valley.

The rock foundation under the dam is chiefly a more or less sheared serpentine—except along the southwest valley edge where it is schist and sandstone.

Height of Dam. The borings show that the dam is higher than would be judged from surface appearance. None of the wells along the crest of the dam reached the bedrock or recognizable valley floor (depths 62, 50, and 63½ feet respectively). An approximate estimate, based on a conservative slope, carried from holes that did strike bottom, is 80 - 85 feet for height of the fill over the deepest part of the old valley under the crest of dam. The height of the crest above the lowest part of the downstream toe is about 105 feet.

Old Stream Course and the Spillway. The old stream trench was evidently near the southwest edge of the valley, and the filling of this trench, and apparently also the effort to stop percolation through the dam has caused the dam to be extended much farther downstream along the southwest side of the valley, giving an unsymmetrical form to the fill. The spillway was placed on the opposite side of the valley where the valley side slope is more gentle, and bedrock comparatively shallow.

Problems presented by conditions found. If the highway were to cross the dam as originally proposed, the following conditions would be met:

1. Approaching from the east side, a part of the road fill would be on the upstream (reservoir)

side of the dam. If it were thrown directly on the silt accumulation of the reservoir, the latter would probably move and cause the fill to flow or creep out into the reservoir. While no recent test has been made of the character and depth of the silt in the reservoir just above the dam, estimates of probable depth of the original floor indicate that in the deepest part underlying the proposed road fill, the silt is 40 - 50 feet deep. When wet this material might flow its own weight, and tend to fill any deep excavation.

2. The road fill would cross the dam diagonally and on the northeast end it would have been about 25 feet over the dam crest, crossing over to the downstream face at progressively lower elevations. Along the higher part of the dam, it would be unevenly loaded. It is doubtful whether this dam would stand such uneven loading without some movement of deformation. A series of holes put in the central and eastern part of the dam show water in the dam, its upper surface at elevation 389 - 391 under the dam crest, and 382 under the highest berm. This water does not extend uniformly to the base of the dam, but is commonly cut off by a clay layer, giving a zone of water through that part of the dam, 5 to 10 feet thick (at 415 reservoir level) resting on a clay layer base, which is plastic, especially in its upper part. Uneven loading might well cause movement along this wet plastic zone.

If the water were cut off and the clay allowed to become dry I believe it would be firm enough

to hold. The water layer referred to extends well along and through the dam. Expense, and time for cut off drainage and drying would be involved.

3. Farther west the roadway would run over the lower downstream part of the dam, crossing the lowest two berms overlying the old stream trench. This part of the dam was found to contain a considerable thickness of soft wet clay carrying a varying percentage of small rock fragments. The worst condition was shown in hole 8 on the lowest berm (elevation 364.5 feet). The surface was "swampy", water stood in the hole a few inches below the surface, and for 33 feet down from the surface was a body of soft wet clay carrying only 15 - 30% of small rock fragments and sand, and yielding 70 - 85% of clay and mud washings on mechanical analysis. A 50-foot-high road fill was planned to overlie this area. Such a load would probably cause the soft clay to squeeze out, and would give a slippery, soft, foundation for the embankment. The conditions shown in holes E and F on the next higher berm are only a little better. In hole F water was struck at 4½ feet and the material encountered was watersoaked all the way down (46 feet). There is a larger proportion of rock fragments than in hole 8. [87].

Near and just below the "swamp" area toward the southwest valley side, water seeps out and is in part carried away from the fill surface in pipes. It has the appearance of spring water, possibly

coming from the bedrock in the vicinity. With the idea of determining whether this water and the "swamp" water supply was entirely local and not from the reservoir, holes E, F, on the 370 foot berm, C at 382.7 elevation and G on the highest berm (399 feet) were put down. These holes showed that water passes through the whole dam continuously to the "swamp" area. The free water surface in the holes was found, with reservoir water surface at 415 - 420 feet elevation, to be as follows:

	Elevation, top of hole	Water Surface
Hole 7, crest of dam	434.8	391.0
G	399.0	380.0
C	382.7	375.7
E	369.2	368.2
F	370.2	365.7
8 (swampy area)	374.5	364.0

If a fill should be placed along the downstream slope of the dam, as originally proposed, it would be desirable to remove the soft clay and provide drainage for the water coming through the dam, and for any spring water that may reach the surface in the area involved. It is questionable whether it would be safe to remove 33 feet of soft clay unless the reservoir and dam were first freed from most of their water. It might start a movement or sloughing in that part of the dam that overlies the old stream trench.

Conclusion. Surface examination and borings have disclosed conditions that would require special engineering treatment if a high road embankment is to be placed diagonally across Temescal dam. Such treatment on the one hand would incur expense that would offset a considerable amount of straight fill required if the dam is not used, and, on the other hand, would involve risk of seriously damaging the dam structure during construction of the embankment. I therefore advised that the road be routed below and clear of the main body or of the lower berm area of the dam.

Furthermore, I am of the opinion that with a high water surface in the reservoir, and leaving the dam just as it is, if a strong movement should recur on the Hayward fault in such a way as to shear the dam and subject it to the accompanying earthquake shock, or possibly even without the direct shear if a severe earthquake shock the dam, there would be danger of its failure. I would advise, therefore, that you arrange if possible for the maintenance of a water level in the reservoir as low as feasible, and that if the road crosses the valley, below the dam, the highway fill be constructed on the theory that it may possibly be subject to the effects of failure of the dam.

The Railroad Crossing.

On the northeast side of the valley of Temescal Creek the Sacramento Northern Railroad runs parallel to the valley and must be crossed by the new

road. The railroad grade is here in an open cut that lies between stations 50 and 52 and is about 23 feet deep along the center line of the proposed road. Sheared serpentine outcrops on the west side of the cut near the center line of the proposed road grade. To the southeast the cut is in rhyolitic detritus. This rhyolitic material occupies the slope up to and beyond the old tunnel road. Where it is in place, it shows general shearing. But most of the material of the lower slope is slide, talus, and wash from above. About 100 yards northwest of the crossing of the Pacific Gas and Electric Company's road over the railroad, serpentine comes in on the east side of the cut rising to the northwest until it extends upward about 35 feet above the track. It continues along the cut to its northwest end. On the hill slope above the cut a sheared greenstone overlies the serpentine behind a concrete wall, and is overlain in turn by the rhyolitic material, the contact between the latter two dropping down to the southeast, so that only rhyolite is found in the southeast portion of the cut. Several times when examined, water was observed seeping into the cut apparently from both sides, but chiefly from the Northeast side, southeast of the end of the concrete wall. Again on a small flat north of Station 51 water seepage was observed. The railroad engineers must have had some difficulty with sliding or slumping in the cut, and protected it by a concrete wall, by continuous drainage ditches on both

sides of the cut, and a drain to a sewer with a perforated metal plate at surface to take off the water which at times must be much more abundant than when I observed it.

Any plan to make this crossing in the form of a bridge or viaduct supported by piers or columns, would have to be carried out with great care and special precautions in construction and in draining, because of uncertain stability of the ground and the likelihood that the sheared serpentine would not withstand locally applied high stresses. One plan suggested, that of placing the railroad within an artificially constructed concrete "tunnel", on which the highway fill will be placed, the tunnel to be so constructed that the stress will be distributed throughout a monolithic floor, and not locally concentrated, appears to me to be most suitable to the ground conditions. Not only would the problem of satisfactory footings be solved, but the fill would tend strongly to stabilize the sheared and detrital material on the uphill side of the present cut. In any case, I believe it would be well to take appropriate measures to drain off the water that now soaks and softens parts of the ground east of the track.

Toward the creek from the lower end of the railroad cut are evidences of an old landslide. A number of large trees are growing on the slide material, and no noticeable action appears to have taken place since the trees were planted. This action may possibly have taken place at the time of

the 1868 earthquake, 62 years ago, and still show the present tree growth. It may of course have been still earlier. Evidence of similar action on a small scale is found east of the railroad near the road crossing. If a heavy earthquake follows a wet season during which the ground is well soaked it is likely to start slides at a number of localities, as was done by the earthquake of 1906. It is possible that in the future a heavy earthquake under like circumstances might cause slumping or sliding in this vicinity, and also further along up to Station 60, especially if steep-sided cuts are made in the rhyolitic talus and hill waste. Such an event is to be considered as a rare occurrence as it depends on the concurrence of two unrelated factors one of which recurs every few years and the other at much longer intervals. It might result in the slumping, sliding or rolling from the upper slopes, of earth and rock detritus onto the road. The chances are very slight that the roadway itself would be carried away. It may be noted here that along the Contra Costa County extension of the old tunnel road, such occurrences are not infrequent and take place after practically every wet winter without requiring the aid of any earth shock. While such action is possible along this part of the road, it may be expected to be a very rare event.

From Temescal Creek Crossing
to Tunnel Portal.

Between Stations 53+20 and 59+90 a cut is planned. The material along this stretch is rhyo-

litic hill waste and detritus. The excavation is to remove up to forty feet or more of material and may reach rhyolite in place. The bottom of the cut will probably be entirely satisfactory for roadway foundation. The hillside slope of the cut will encroach on the old tunnel road which will have to be set back by means of a lateral cut into the hill, if it is to be retained as a road. If fairly firm rock is not uncovered in the hillside slope of the cut for the new road, this slope may be subject to slumping or sliding after wet seasons.

After a short fill between Stations 59+90 and 60+40 the proposed grade crosses a spur in a cut between Stations 60+40 and 62+50. This spur shows outcrops of rather massive rhyolite and some soil. The rhyolite is somewhat sheared with a certain amount of clay gouge in the fractures. The cut will propably expose rock over much of its course, and should be satisfactory for road foundation.

Between Stations 62+50 and 65+85 the proposed road crosses Temescal Creek on a fill. While on the upstream part of the right bank there is a considerable amount of soil and hill wash, the downstream part exposes rather massive though somewhat sheared rhyolite. Throughout, underlying in part hill wash and a thin covering of stream detritus along the creek-way, in part exposed at the surface, is rather firm rhyolite. The foundation for this fill is entirely satisfactory, probably the best along the whole road.

Between Stations 65+85 and 74+95 is a long cut. The first 70 to 100 feet is in rhyolite as just described and then passes into Chico shales and sandstones. The contact is faulted and shows shearing, but there is no indication that this is an active fault or liable to any further displacements.

The surface depression roughly between Stations 67 and Station 69 is due to general erosion in the Chico shales. These shales by their weathering yield a clayey surface which becomes soft and slick when wet. It is probable that the cut will remove most if not all of such material from the surface except along the deepest part of the depression. This deepest part of the depression naturally carries the bulk of the drainage from the higher slopes. Not much water is involved but in the past it has greatly softened the ground, and given rise to a spring and swampy spots. Care should be taken to handle the water and prevent a slick sliding-surface developing under the fill. The waste from this cut if used for fill on the creekward slope, should be placed where it will cause no trouble from its propensity to soften when water-soaked.

Beyond approximately Station 69 the formation carries considerable sandstone with only subordinate shale, to about Station 70, then more shale to about Station 71, then more sandstone again. This sandstone is light brownish to grayish when fresh, and while usually not a hard rock, should on the deep cut make a good foundation and on moderate slopes

hold up well. There is some shearing in the rock. Most of the better developed fractures and shear planes dip back obliquely into the hill and would cause no practical trouble. Between Stations 74+75 and 76+10 the road grade is to be partly on fill and partly in cut. The formation between Stations 74+75 and 75+55 is chiefly shale, beyond this, to Station 77 is a mixture of sandstone and shale, more or less broken up. With a considerable proportion of sandstone fragments and blocks in association with the shale, the clayey products of the shale weathering will act as a binder and allow satisfactory consolidation of the fill, and will cause no trouble if the clay is not too abundant and, then, not unless it becomes water-soaked. Insofar as the hill slope is steep, any part of the grade which in the same cross section is partly on cut and partly on fill may suffer from a settling or sagging of the fill with respect to the rock in the cut. Where the fill is chiefly sandstone or even sandy detritus from the sandstone, if its base is well founded, such action will not take place. Shale or clayey fill ought not to be based on the steep slope.

A test cut above Station 76+10 shows more shale than sandstone. If this is the prevailing condition in the slope of the road when made, it may be desirable to reduce the slope to a lower angle.

Between Stations 76+10 and 79+70 the roadway is to be placed on a fill across a branch of Temescal Creek. It lies between two spurs of dominantly sandstone formation. The only special point to

which attention may be called is that along the tributary streamway and for some distance up the right bank on the hillside to about Station 78+80 there is a considerable amount of clayey material. Fortunately it is on a rather flat slope, and does not appear to be so located as to be subject to water soaking if covered by a fill.

Between Stations 79+70 and 82+40 the proposed road is again in a cut, the rock is chiefly a moderately firm sandstone with subordinate shale. Conditions in general are satisfactory. Beyond Station 81+50 the road will be partly in cut and partly on fill and the same statement applies as was made for the stretch between Stations 74+75 and 76+10.

A reef of stronger sandstone crosses the creek between Stations 83+50 and 85+10. Although it has suffered shearing, it is excellent foundation for cut or fill.

Between Stations 82+40 and 87+50 the proposed road again crosses Temescal Creek on a fill. Conditions appear to be entirely satisfactory.

The cut from Station 87+50 to Station 89 exposes shale and sandstone badly broken up. It stands well on a steep slope when dry. If strongly water soaked, as after a heavy winter, it would probably show some slumping. The cut is not high, and the effect on the road would not be serious. The present fill taken directly from the cut, shows some settling and development of cracks. It is probable that the clay shale when originally excavated was more or

less wet from the winter rains and shows the result of drying and settling. If thoroughly settled and rolled and protected from water-soaking it should stand satisfactorily.

Between Stations 89+00 and 90+50 a fill is placed across a small natural drainage way. The fill about 30 feet high will probably be made up chiefly of a mixture of sandstone and shale detritus with associated clayey material. Reasonable protection from water soaking will render it entirely satisfactory. The underlying rock is shale.

Between Stations 90+50 and 93+50 is a cut in rather badly broken sandstone and shale. Sandstone is dominant in the central part of the cut, with shale dominant towards the ends. Some fresh, hard, gray rock is found in base of cut. This cut has a higher side slope than the one between Stations 87+50 and 89, but will stand better, because of the sandstone in the higher part of the cut slope.

A fill over a small tributary lies between Stations 93+50 and 95+50. The statement made for fill between Stations 89+00 and 90+50 applies to this fill.

In the cut between Stations 95+50 and 96+75, the central portion is occupied by a hard sandstone reef. Softer sandstone and shale is found towards both ends of the cut. The high slope of cut is satisfactory and stable, and the material excavated makes a firm and stable fill.

Upstream from this cut, sandstone is exposed about Station 97+50 to 98+00, but beyond this the

bedrock appears to be dominantly shale. It is poorly exposed.

A long fill is proposed from Station 96+75 to Station 106+50. It practically occupies the bottom of the creek valley. The grade of the original floor is not high, and the side slopes are moderate. Rock is only occasionally and poorly exposed, and is apparently chiefly Chico shale with subordinate thin sandstone layers. There is a general development of clay especially in the soil. Between Stations 98. and 100. a tributary comes in from the north, and between Stations 103. and 105. is a low sloped country which will normally feed water into the clay and fill in wet seasons. The lowness of this part of the fill and its stable position in the valley bottom, make such conditions of minor importance along the stretch. However reasonable drainage should be provided for.

Proposed Highway Tunnel
West Portal

The material at the portal as indicated in profile is largely stream wash, hill wash, and creep, —soft, weak and pervious to water. In the actual construction much of this will probably be removed entirely by open cut, any that remains will require positive support as it cannot be expected to maintain itself unsupported for any length of time.

The hill slope from the indicated portal up to near the crossing of the present "tunnel road", carries a considerable covering of hill wash and

creep material, largely consisting of a fairly loose sandy soil. Its depth cannot be accurately estimated. At about 950′ elevation it is about 15 feet thick and above this towards the present tunnel road it varies from about 10 to 3 feet in thickness. It erodes out very easily under the action of running water and the road culvert has had its outlet position changed at least twice, apparently due to the deep trenches the water has cut.

Near Station 113, from altitude 860 - 870 is a bench that appears to be a stream terrace the back part of which carries a thick coating of wash and creep material from the hillside above. It all lies above the level of the tunnel roof but would have a tendency to carry water for awhile after rains and feed it down into the tunnel.

Monterey (Sobrante?) Sandstone.

The first bedrock formation encountered is of sandstone and sandy shale, probably of the Monterey Group (Sobrante Sandstone?). The sandstones are light gray when fresh, light ochreous colored when weathered. When fresh they are firm, sometimes hard and resistant, but most of the material slacks on exposure to the atmosphere, oxfoliates and crumbles down. On weathering it assumes a pale yellowish or ochreous color and mostly disintegrates into sand. The sandy shales when fresh are brownish and firm but also slack, exfoliate, and disintegrate on exposure at the surface of the ground. A test tunnel recently run in about 124 feet in the

west portal region exposes the fresh sandstones and sandy shales in the face. If this fresh and relatively unbroken condition continues, the formation will prove satisfactory insofar as sufficient height of such material lies above the tunnel roof to give satisfactory support. Where it is but a thin mass between the tunnel roof and the overlying disintegration products it is desirable to plan for its artificial support or removal even if it stands well on first opening.

Even in the tunnel these rocks will be subject to gradual slackening, although much more slowly than when exposed at the surface of the ground. This should cause but slight difficulty during construction, and when the formation is protected by the finished tunnel lining this action will no longer be effective.

As at the surface of the ground, only the weathering products are to be observed, before actually driving the tunnel through, the condition of this formation along the tunnel line, and depth to the top of the fresh firm rock, can be determined only by test holes or borings. The condition shown in the face of the tunnel are promising of satisfactory conditions beyond.

On the surface the sandstone ends about at the present "tunnel road" which probably means that along the proposed tunnel line it would end about Station 118 or 118+50, 175 feet - 180 feet underground.

For statement of oil and gas possibilities see under Claremont Cherts.

Claremont Cherts.

After leaving the sandstones the prevailing formation for about 1200 - 1300 feet, is the Claremont Chert (called Claremont Shales in the San Francisco Folio of the U. S. Geological Survey). This formation consists chiefly of a series of alternations of layers of chert from 2 –6 inches or more thick, and somewhat thinner layers of siliceous shale. Occasionally a layer of clay shale, sandstone, siliceous ferruginous limestone, or volcanic ash is encountered.

Water. The strata of this formation intersect the ground surface at steeply inclined angles, and they are cut by many small faults, which in many cases also intersect the surface. The cherts are quite brittle, and any fractures or crush zones produced in them by earth movements tend to remain open and allow free movement of water. The combination of these characters generally results in water flowage through many lines in the formation. Previously stored water may be trapped by the tunnel driving. The Claremont tunnel penetrated this formation at a greater depth, and therefore under conditions likely to develop more water than the proposed tunnel. It also encountered it where affected by marked faulting. Nearly 700 gallons a minute were yielded by the cherts when first penetrated,

but this yield has since dropped to less than 50 gallons a minute.

The old inter-county highway tunnel lies entirely in the chert formation, but at a still higher level than the proposed tunnel. I do not know whether it developed much water during construction. It must have yielded some but probably not very much. At present, after rains, there is a certain amount of drip and seepage into the tunnel, and a similar renewal of water flow after rains would undoubtedly take place in the cherts penetrated by the proposed tunnel, even after all storage water had been drained off.

Fortunately none of the rock types found in the Monterey chert formation as developed in this area suffers from contact with water. They all stand as well wet as dry.

Oil and gas. The cherts and most of the shales of the Monterey formation are bituminous, and on being heated to a high temperature yield oil and gas. This property, however, is not likely to cause any trouble in the course of tunnel driving. But in the course of the geological history of these rocks, some oil and gas has been developed and may be encountered in tunneling, where formation is moderately dry.

In the Claremont tunnel, presumably largely due to the very free flow of water through the cherts, but little oil and gas was encountered, and no trouble was experienced from this source. It may be

added that on account of gas troubles in the Chico formation, the tunnel was worked with strict rules about open lights, matches, and smoking, and this may have had something to do with the lack of gas trouble in the cherts. Some of the oil and gas which undoubtedly originated in the Monterey chert formation, was found in the Orinda formation at and not very far from the contact with the cherts. The oil and gas had apparently penetrated the Orinda formation along small faults and fissures. They caused considerable trouble in the eastern part of the Claremont tunnel, where at one time a heavy blast in the face set fire to the oil and gas which in turn ignited the timbers, entailing much delay and expense.

In the San Pablo tunnel, where the body of cherts is more closed in by overlying rocks than in the proposed tunnel, a serious explosion occurred while they were driving through the cherts.

It is possible that some oil or gas or both developed from the cherts, may have found its way into the Monterey (?) sandstones, and it would therefore be a measure of safety to drive the tunnel with suitable precautions, especially as the cherts are approached within a few hundred feet. If light oil is struck in any part of the tunnel it should not be allowed to collect in pools or depressions or stand in drainage ditches as it may gradually develop gas and become liable to ignition or even explosion, setting fire to timbers or causing worse damage. It is impossible to predict the exact location or amount

of such material that may be encountered. It may be little or none, or it may be in troublesome amounts. It should be watched for and given immediate attention if encountered.

Structural Characters. In general the chert belt is rather regular in its structure, the strata dipping high (56° - 80° at the surface) to the southwest.

The southwest 100 feet or more of the chert is the most irregular part of the belt intersected by the proposed tunnel line (about 118+50 to 119+50). It is cut through by a fault of considerable magnitude which is probably a continuation of the Wildcat fault of the San Francisco folio. This fault has caused more or less shearing, and displacement along subsidiary fractures with rotation of minor blocks and crushing in certain zones. To the northeast of Station 120+00, the structure appears to be remarkably regular to the northeast limit of the chert belt, although there are present some minor faults and crushed zones.

The fault zone will be occupied by broken and possibly crushed chert. In the Claremont tunnel, the chief yield of water from the cherts came from this fault zone.

In driving through the cherts, the combination of crushed zones and water often presents difficulties. The crushed rock (with or without water) may flow out into the tunnel almost like quicksand, or, if it holds together better, it may develop considerable pressure, until the water pressure is relieved by free flow into the tunnel. In the Clare-

mont tunnel the careful driving forward of spiling was necessary in the more broken and the crushed portions of the chert. In certain cases where a broken or crushed mass of rock lies within intersecting fault planes, and thereby loses its bond to surrounding rock, it may slump down into the open working, leaving a chamber in the wall or roof. If this is experienced at all in the proposed tunnel it will probably be in the southwestern fault zone mentioned above. If such unsupported blocks or masses are met, it would probably be best to let them down or remove them, before placing the concrete of the completed structure.

Based on experience gained from other tunnels in the cherts, and judging from long exposed steep quarry faces in the same formation, it may be expected that after driving, and after the material in the immediate vicinity of the tunnel has come to equilibrium, the rock will stand well and need no support. The main belt of cherts beyond the fault zone has a particularly favorable structure from this standpoint, and is the strongest and most stable material to be penetrated by the tunnel. Even the part in the fault zone is likely to stand well after the driving through it is completed. This was the experience in the Claremont tunnel.

The Orinda Formation.

From about Station 130 (as judged by surface dip, but it may be farther along in the tunnel as the dip may steepen underground), to the east portal

of the proposed tunnel, the bore will be entirely in the Orinda formation of Pliocene age. This formation consists of a series of alternations of beds of consolidated gravel, clayey sandstone, and sandy clays, which were laid down as fresh water deposits. The beds dip at high angles (55° - 60°) to the southwest. Tunnel driving is generally rapid in the sandstones and clays, somewhat slower in the gravels, which are naturally harder on drill steel. The formation usually breaks rather blocky and often develops a certain amount of overbreak.

Water and its Effects. Water is usually in very slight amount in the Orinda formation, coming in along certain gravels and coarse sands, or seeping along minor faults or shear zones. Most of the formation is likely to be dry. In the tunnels already driven through it, the greater part of the clayey sandstones and clays were dry and dusty.

While these sandstones and clays are naturally mostly dry, they are generally affected by contact with water. In fact they are sensitive to both drying and wetting, and a chunk removed from underground and exposed above ground usually cracks and slacks in the sun, and breaks down into a soft clay or mud in the rain. While the beds are firm, and when dry stand well underground, they carry but little natural cementing material, except in occasional layers. These cemented layers remain firm even on exposure to sun or water.

Where not badly sheared this formation is likely to stand well provided it is protected from water

action and air slacking. In the Lafayette and Claremont Tunnels where water (a comparatively small amount) came down through sheared clays or clayey sands, a locally weak zone was produced that made weight on the timbers, or slowly pushed them in laterally. Such zones required special support. If such zones occur along the proposed tunnel line they are likely to be narrow, and not very serious.

In the flood that occurred in the east portal region of the Claremont tunnel (flood water coming in from San Pablo creek), the water filled the tunnel and stood against walls and roof as well as floor. Portions of the roof slumped down, causing considerable chambers that ran 20 or 30 feet above the tunnel roof line. A number of timbers slipped in laterally, and in places timber sets collapsed before the water was all pumped out. I mention this to illustrate the effect of water lying against an exposed surface of the formation.

Along the proposed tunnel line conditions are very good from this standpoint, as no important source of underground water exists upgrade from the Orinda beds. It should be easy to prevent the water from the cherts working up into the Orinda region. During construction and later, the tunnel bore through the Orinda beds should be protected from possible influx of water from the surface drainage near the junction of the Tunnel Road and the Fish Ranch Road (called on map, Claremont Avenue Extension).

As naturally exposed at the ground surface, the Orinda formation slacks down into soil and gives very few rock exposures. It is also subject to landsliding. Such a slide has taken place just below the chert contact and about 100 feet north of Station 134. Its movement has been northward away from the tunnel line. Another lies 50 - 100 feet south of Station 136 and has moved eastward. These are somewhat off the tunnel line, are superficial and have affected the ground for a depth of but 15 - 30 feet where the tunnel lies 200 or more feet below the surface. Landsliding in this formation does not take place when it is dry and normally occurs following a rainy season, especially one of above the average precipitation. As the slope of the ground is fairly steep near the east portal, and as it may be steepened and otherwise disturbed during tunnel operations, the possibility of the sliding or slumping of this formation in the portal region should be kept in mind and guarded against.

Support. I believe that in general this formation will stand well if reasonable care is taken in handling it, except near the east portal where the overburden is comparatively slight, and the surface influence may have weakened or may in the future weaken the material sufficiently to require artificial support.

Oil and Gas. As noted above, under the Monterey Cherts, it is possible that some showings of oil and gas derived from the cherts may be encountered in driving through the Orinda formation.

Their occurrence in this formation is so irregular that their presence cannot be definitely predicted, but it would be well in driving the tunnel to watch for them and, in case their presence is noted, and they can be easily recognized in this formation, use care in blasting and have no open lights or flames. See further the statement under Monterey Cherts.

Tunnel Earthquake Relations.

As far as we have any definite evidence concerning the faults that cut the proposed tunnel line, their movements were connected with a period of geological activity that is past. There is no field evidence, or evidence from history or from our seismographs that any movements have taken place along these faults in recent times. While the evidence is wholly negative, I believe that it is reasonably safe to assume that no fault will by its movement cut or directly deform any structure that may be placed in the belt under consideration. That future movements will take place farther west near the base of the hills is probable, and it is also likely that the tunnel formations will be shaken by future earthquakes. The rocks should, however, stand satisfactorily even in the face of a severe shaking up by an earthquake, any weak near-surface stretches in the region of the portals possibly excepted.

Tunnel in General.

In a general way the rocks and rock structures that would be encountered in the proposed tunnel

are favorable from the engineering standpoint. The strata mostly dip at high angles and are intersected by the tunnel at a high angle to their trend. Such a condition restricts the widths of belts that may show local weakness or much water, and presents the strongest arrangement of the type of strata involved, and the easiest to deal with in tunneling.

Throughout the main belt of cherts, the rocks may be expected to be entirely self-supporting indefinitely; in the fault belt of cherts and in the Orindan, with proper care in driving and handling, the rocks should stand well and be self-supporting except possibly along certain shear zones which may require local reenforcement to withstand local pressure (not general weight). These statements do not refer to any measures that may appropriately be taken to prevent the detachment or falling of fragments or blocks from the surfaces exposed by the tunnel, but to general support of the mass of rock in the sides and roof of the tunnel.

Near the portals the rocks will probably be found weak and will require positive support to prevent movement or caving.

The question has been raised as to the relative desirability of a single larger tunnel or two smaller ones. The relative advantages in operation of the finished tunnel or tunnels are outside the scope of this report. The geological aspect is related to construction and to the maintenance of the integrity of the finished structure. I do not know of any geological considerations that would indicate that the

smaller tunnels are feasible and a larger one not. It is certain that in cases where support is necessary or resistance to any possible earth pressure must be provided, the forces or stresses involved will be much greater with a larger tunnel and the problem of handling such conditions to that extent more serious. I have at present no reason to say that the larger tunnel would be impossible or that it would constitute a risk that should not be taken.

From the East Portal of Tunnel
to Station 156+50.

From the east portal of the proposed tunnel to the end of the surveyed line Station 156+50, the formations involved are the Orinda, as described in the section on the tunnel, with comparatively thin layers of alluvium along and near the creek lines, and soil and hill waste on the slopes. The plan for the highway is shown on a blueprint of Joint Highway District No. 13 entitled Right of Way thru Apartment Estates Club of America Incorporated Property, and dated Sept. 1931.

From Station 140+50 to about Station 147 the roadway will be sunk into the ground, in part covered over (Station 140+50 and Station 142+19), in part open above (Sta. 142+19 to Sta. 147). The upper part of the cut will be in hill waste, soil and alluvium, the lower, at least along some of the distance, in the Orinda formation. No special problem arises as the result of the geological conditions. Any covering will have to be supported, and the side walls will have to receive such thrust as is occa-

sioned by the seasonal wetting of the clayey ground. Only comparatively small stresses are involved.

From Station 147 to Station 156+50 the road is to be largely on fill with short stretches of cut on right or left. If the fill material is taken from the tunnel it will contain a considerable amount of clay in its make-up, becoming quite soft when water-soaked. As the fill will be in the bottom of the valley it cannot be subject to any important sliding, and as its side slopes are at a maximum only 10 or 12 feet high no serious slumping is to be expected.

The cuts made into the hillside affect but a small distance along the road: The Claremont Avenue Extension southeast lane between Stations 144+00 and 148+50, and the main road from Stations 154+00 to Stations 156+50. Insofar as these slopes may be in clay, they may slump onto the road after a wet winter, but they are not high and the effects will probably not be serious. Between Stations 149+50 and 154+00 the old tunnel road grade protects the new road from any slumping from the hillside on the east side. The only place where some recent slide movement was noted is between Stations 149+50 and 151+50 along this east side stretch.

Respectfully submitted,

(Signed) GEORGE D. LOUDERBACK,
Consulting Geologist.

[Endorsement]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Pltff's Ex. No. 22. Filed April 13, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

PLAINTIFF'S EXHIBIT NO. 62

February 9th, 1935.

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13
1448 Webster Street,
Oakland, Calif.

Dear Sir:

Inclosed find prints giving general idea of the method we propose using in concreting tunnels,

Very truly yours,
SIX COMPANIES OF
CALIFORNIA.

By T. M. PRICE,
Project Manager.

TMP:k
Copy RB

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. *Deft's* Ex. No. 62. Filed April 29, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

PLAINTIFF'S EXHIBIT NO. 92

INDUSTRIAL ACCIDENT COMMISSION

State Building
San Francisco
April 16, 1936

Six Companies of California,
1522 Latham Square Bldg.,
Oakland, California

Gentlemen:

You are hereby advised that the order of this Commission covering the Broadway Low Level Tunnels, dated February 29, 1936, is hereby rescinded, if the following conditions are complied with:

1. Driving may be continued in the upgrade tunnel beyond the junction of the wall plate drifts to the East portal and driving may be resumed in the downgrade tunnel beyond the caved-in portion to the East portal, if a method is followed as presented by your drawing No. 119, dated April 10, 1936, which consists in general of installing 8 x 10 timber spreaders in each timber set and extending across the tunnel approximately 19 and 27 feet respectively above the finished floor of the tunnel; further by continuing to use excavation equipment which may be operated beneath the lower spreader without interfering with it.

The top spreader is to be installed immediately after the completion of the segment set. The lower spreader is to be installed immediately after the core is excavated sufficiently to allow this spreader to be installed. Two longitudinal timbers, 2 x 12", are to be spiked to the top of each lower spreader to prevent bowing.

Two sets of hangers, two to each set, are to be provided for both the bottom and top spreaders all as per detailed drawing No. 119.

2. A wall plate system for driving the tunnel will be permitted provided 12 x 12 plumb posts are installed under each segment set, tightly wedged in place. Batter posts may be used provided in plumb posts are installed immediately after excavation is done for such posts. The batter shall not exceed 6 to 15 from the vertical.

Dowels shall be installed in each A segment and wall plate. (The dowel system will be accepted in lieu of placing the spreader at the wall plate joint.)

The plates shall be blocked behind each segment set and shall set on a firm and even bearing.

Provision must be made against undermining the wall plates by the Bagley system of excavation, and also against overshooting the side walls directly under the wall plates.

3. In addition to the Fire Bosses keeping the record of overbreaks as outlined under the Commission's order of March 16, 1936, the Fire Bosses shall check the segment sets daily to determine if the

wall plates have settled, thereby loosening the wedging and packing of the segments.

The contractor shall also make a daily check of the segment sets to determine if the wedging and packing is tight.

If the segments are found to have become loose rewedging shall be done.

4. The core of the tunnel section shall continue to be sloped sufficiently to provide safety against caving ground to the workmen drilling lifters or similar holes.

Very truly yours,

(Signed) T. A. REARDON
Commissioner

(Signed) FRANK J. BURKE
Deputy Commissioner.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 92. Filed May 5, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [160]

DEFENDANT'S EXHIBIT A

IV. (b)

(3) Construction Cost, Subdivided into Principal Structures or Classes of Work, and Showing (i) Labor and (ii) Material Cost for Each Subdivision:

ESTIMATE

Item	Quantity	Labor (i)	Materials (ii)	Other Items	Total
1. Grading	763,000 cu. yds.	$ 53,424.00	$ 22,423.50	$153,052.50	$ 228,900.00
2. Overhaul	8,100,000 sta. yds.	11,340.00	8,250.00	20,910.00	40,500.00
3. Structural Excavation	44,000 cu. yds.	60,500.00	198.00	5,302.00	66,000.00
4. Shoulders	362.000 sq. ft.	2,534.00	3,630.00	1,076.00	7,240.00
5. Reinforcing Steel	4,420,000 lbs.	55,252.50	114,920.00	28,727.50	198,900.00
6. Structural Steel	445,000 lbs.	4,005.00	12,549.00	5,696.00	22,250.00
7-8. Concrete	15,350 cu. yds.	38,377.50	97,040.90	91,631.60	227,050.00
9-10. Concrete pavement	68,100 sq. ft.	2,625.00	8,605.27	115.73	11,346.00
11. Asphalt Surface	44,000 sq. ft.	88.00	3,146.85	285.15	3,520.00
12. Oil Macadam	724,000 sq. ft.	3,864.00	72,561.35	10,454.65	86,880.00
13-14-15-16. Curb	3,716 lin. ft.)				
Gutter	4,300 sq. ft.)	277.50	1,234.80	1,887.70	3,400.00
17. Cement Sidewalks	21,000 sq. ft.	525.00	1,597.05	1,237.95	3,360.00
18. Fill Protectors	15 each	30.00	104.86	15.14	150.00
19-29 incl. Pipe Culvert	9,340 lin. ft.	1,309.00	15,522.75	6,220.00	23,051.75
30-39 " Manholes, etc.	48 each	1,536.00	420.00	684.00	2,640.00

Joint Highway District No. 13

321

DEFENDANT'S EXHIBIT A (Continued)

Item	Quantity	Labor (i)	Materials (ii)	Other Items	Total
40. Underdrains	4,100 lin. ft.	56.00	3,075.00	1,994.00	5,125.00
41. Piping, 6 inch Cast Iron	2,020 lin. ft.	272.00	1,360.26	2,407.74	4,040.00
42. Guard Rail	12,400 lin. ft.	3,968.00	2,976.00	1,116.00	8,060.00
43. Pipe Hand Rail	640 lin. ft.	90.00	528.00	662.00	1,280.00
44. Rip Rap	220 cu. yds.	308.00	—	1,892.00	2,200.00
45. Metal Cribbing	46,000 lbs.	276.00	4,600.00	874.00	5,750.00
46. Gravel Foundation	330 cu. yds.	102.00	716.10	831.90	1,650.00
47-48. Tunnel	5,820 lin. ft.	1,319,290.00)			(2,010,800.00
49. Cross Adits	322 lin. ft.	5,131.00)	444,327.35	250,101.65	(8,050.00
50. Ventilation Buildings	Lump sum	120,772.50	105,799.60	34,427.90	261,000.00
51. Ventilation Equipment	Lump sum	12,000.00	80,000.00	16,350.00	108,350.00
52. Mechanical Equipment	Lump sum	12,000.00	20,000.00	2,000.00	34,000.00
53-54. Electrical Equipment and Carbon Monoxide Detectors & Recorders	Lump sum	41,000.00	140,000.00	21,620.00	202,620.00
Administration, Engineering & Inspection		173,922.69			173,922.69
		$1,924,875.69	1,165,586.64	661,573.11	3,752,035.44

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. A. Filed April 13, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT D

PRELIMINARY REPORT ON THE GEOLOGY OF THE CLAREMONT TUNNEL

Introduction

The following report has been designed with a view towards forecasting in so far as possible the nature of the rocks and rock conditions which will be encountered in driving the Claremont Tunnel. Scientific details are largely omitted except where they have a direct bearing on the engineering problems involved. Special emphasis is placed on the nature, hardness, and "standing ability" of the rocks which will be encountered; on the thickness of the various types of rocks along the line of the tunnel; on the location of faults of consequence; and on the possibility of encountering water and gas.

The data presented herein is based on field work carried out by the writer during April, 1926. Field observations were accurately tied to the survey following the surface line of the tunnel. Such errors as enter the work therefor, are due to observation and interpretation rather than to inaccurate location. Needless to say, imperfect surface exposures of the rocks make certain errors inevitable. Limits of error will, where possible, be indicated at appropriate places in the following description.

GEOLOGY OF THE CLAREMONT TUNNEL Sta. 0 to 66.

Thickness 6600 feet. Orindan formation. Composed predominantly of loosely cemented gravels and sandstones, and some shales. These rocks are part of the same group as now exposed in the west heading (first 1100 feet) of the Lafayette tunnel, and may reasonably be expected to show the same characteristics. The relative abundance of gravels, sandstones and shales will approximate the proportions of these rocks shown in the Lafayette tunnel, though a slight increase in the proportion of gravels may be expected to the westward.

These rocks should break and muck easily. Occasional slabs will break along the bedding planes, but with reasonable care such oversize breakage should be occasional only.

For the first 1000 feet the rocks may be expected to be rather badly broken due to the thin back, the cover being in general less than 100 feet through this distance, averaging about 50 feet. PROBABLY MORE OR LESS TIMBER WILL BE REQUIRED HERE. Beyond Sta. 10, however, and especially beyond Sta. 19, the back rapidly thickens, so that the solidity of the rocks and HENCE THEIR STANDING ABILITY SHOULD CONSEQUENTLY INCREASE.

No great quantity of water should be encountered between Sta. 0 and 66, though some seepages will undoubtedly be met with.

Minor faults may occur within this zone but should cause no difficulties. No surface evidence exists to suggest the presence of any pronounced faults cutting this part of the tunnel, except possibly in the vicinity of Sta. 23. Due to a thick cover of brush and poor exposures, the surface evidence at this place is not conclusive.

The Orindan formation is folded into an anticline (arch), the crest of which occurs between Sta. 42 and 50. (See section.) Due to variable thickness of the formation, the base of the Orindan cannot be definitely determined here, so that a possibility exists for encountering older underlying rocks between the above mentioned stations. The nature of these cannot be forecast. The writer is of the opinion however that the base of the Orindan will not be penetrated, the tunnel remaining entirely within that formation.

The location of the western limit of the Orindan (Sta. 66) is probably accurate within plus or minus 100 feet.

Sta. 66 to 88+50.

Thickness 2250 feet. Composed predominantly of lava flows with some interbedded fragmental volcanic material (tuffs and agglomerates) and gravels. (For details see section.)

The lavas (chiefly andesites) consist of rocks which are both hard and tough. Most of the rocks between Sta. 66 and 88 will be of this nature. THESE ROCKS WILL PROBABLY STAND

WITH A MINIMUM OF SUPPORT, BUT DUE TO JOINTING MAY TEND TO BREAK BLOCKY.

Intercolated with the lavas, a certain amount of interbedded fragmental material may occur. The position of such layers cannot be accurately predicted. Such material, if encountered, may be only slightly softer than the lavas themselves, due to the contained lava fragments.

A gravel horizon occurs interbedded with the lava flows. The gravels are entirely similar to the gravels present in the Orindan formation. Approximately 200 feet of gravels should be encountered (about Sta. 68 to 70) after the first 200 feet of lavas have been passed through from the east. The thickness of gravels encountered may be modified by faulting. The same gravel horizon, probably not over 100 feet thick, should again be encountered about 150 feet from the western edge of the lavas (Sta. 86 to 87). Since the gravels wedge out westward, the thickness here cannot be determined exactly.

A major fault cuts the line of the tunnel and should be encountered at about Sta. 68. This fault cannot be located on the surface closer than about 200 feet; nor can its dip be accurately determined, other than that it is steep to the east. In consequence the indicated intersection with the tunnel may be in error by several hundred feet. The intersection was obtained using a strike of N. 12 E., and a dip of 80 degrees east for the fault.

Abundant water may be expected from the lavas between Sta. 66 and 88. This question will be discussed later under the heading "Water Problems".

The western limit of the lavas, Sta. 88 plus 50, is located with a probable accuracy of about 100 feet.

Sta. 88+50 to 108.

Thickness 1950 feet. Orindan formation. The same group of rocks as occur between Sta. 0 and 66. THE CONDITIONS HERE SHOULD BE QUITE SIMILAR EXCEPT THAT THE ROCKS ARE PROBABLY MORE PREDOMINANTLY LOOSELY CEMENTED GRAVELS. LITTLE TIMBER SHOULD BE REQUIRED SINCE THE ROCKS SHOULD STAND WELL. No great amount of water should occur.

Sta. 108-118.

Thickness 1000 feet Claremont cherts. Consist of thin layers (one to three inches) of hard but brittle cherts, interbedded with thin (¼ to ½ inches) layers of shale. A few beds of sandstone and extremely hard tough limestone occur; thickness one to three feet.

The cherts will be hard on drill steel, but due to their brittleness should break well. THEY SHOULD STAND WELL AND REQUIRE LITTLE TIMBER. Since the beds stand practically vertical no trouble from slabbing should occur.

The cherts are bounded on the west (Sta. 108) by a major fault line. The fault is located with a probable accuracy of 50 feet.

Sta. 118 to 171+50.

Thickness 5350 feet. Chico sandstone. Comparatively soft compact massive sandstone, with only occasional thin beds of shale and gravelly sand. These sandstones should drill, break and muck easily. They should contain comparatively little water, though occasional seepages may occur. Where dry these rocks should stand well and require little support. Due to the massive nature of the beds, slabbing should be infrequent. Altogether this group of rocks would seem ideal for tunneling purposes.

The western boundary of the Chico sandstones is a prominent vertical fault. Under ordinary conditions this fault could be accurately located on the surface. Unfortunately the surface here is a closely built up section of Claremont, and in consequence of the houses, gardens, and other surface improvements, the position of the fault may be in error by as much as 200 feet.

Sta. 171+50 to 180+60 (Portal).

Thickness 910 feet. Largely if not entirely silica-carbonate rock. This rock when fresh is of moderate hardness, BREAKS WELL AND STANDS WELL. Near the surface, however, IT WEATHERS EASILY AND MAY BE MORE OR LESS SOFTENED, DECOMPOSED AND BROKEN UP.

Silica-carbonate rock is well exposed between Sta. 181 and 184, but no exposures occur between Sta. 171+50 and 181, due to surface improvements, houses, gardens, etc. Silica carbonate rock may occur through this interval, or its place may be taken by Franciscan sandstone, a moderately hard, tough rock where solid and fresh, but inclined to be rather highly sheared and fractured near the surface. TIMBERING WILL PROBABLY BE REQUIRED THROUGH PART OF THIS DISTANCE SINCE THE BACK IS NOT GREAT.

Gas Problems.

Through two portions of the tunnel all precautions should be taken to guard against gas.

Sta. 108 to 118.

The Claremont cherts between these stations belongs to the formation which is the source of much of the oil in California. The cherts of this belt, even on the surface, have an appreciable bituminous odor. While the structure here is not favorable for the accumulation of great quantities of gas, it is practically certain that some gas will be encountered.

It will be recalled that the explosion which occurred in the San Pablo-Wildcat tunnel of the East Bay Water Company a few years back resulted from gas derived from this same group of rocks, and under very similar structural conditions.

Sta. 42 to 50.

The rocks which may be reasonably expected here, the Orindan formation, are not in themselves a source of gas. But the structure of these rocks between the stations indicated is favorable for the accumulation of gas in quantity. The tunnel certainly passes close to the base of the Orindan, if it does not actually penetrate it. The rocks beneath the Orindan (nature not determinate but possibly the Claremont cherts) may be looked upon as a potential source of gas. If conditions are such that gas does occur as high up as the tunnel, it might well occur in quantity, while the occurrence of gas here is purely a hypothetical condition, it is a possibility which should certainly be guarded against.

Water Problems

Sta. 66 to 88+50.

Water in quantity need not be expected except between Sta. 66 and 88. The lavas, the predominant rocks between these stations, are prone to be traversed by numerous fractures, the result of folding and also shrinkage on cooling. The rocks therefore tend to contain numerous open waterways. The interbedded fragmental volcanic material likewise tends to be porous.

The structure between Sta. 66 and 88, that of a syncline or basin, is decidedly favorable for the accumulation of water, diverting all the surface drainage of the area underlain by the lavas towards the trough of the fold.

It may be pointed out that the wells of the East Bay Water Company in upper Wildcat Canyon, and also the numerous springs which occur on the east slope of the range (Sta. 50 to 60) derive their water from these lavas. The flow of water from the lavas which may be expected in the tunnel may be expected to have some effect on the ultimate producing capacity of these springs and wells.

Water derived from these lavas in the tunnel may be expected to be quite free from surface pollution, and might well be added to the water supply of the Utility District.

Faults

Three important faults will be intersected by the tunnel.

The tunnel will cut Pinole fault at Sta. 68 (possible error of location 200 feet). The movement on this fault, which dips steeply to the east, has been such that the east side has moved up and south with respect to the west side.

The tunnel will cut the Wildcat fault, which again appears to dip steeply to the east, at about Sta. 108. This location is probably accurate to 50 feet. The east side of the fault appears to be the downthrown side. The horizontal component of motion is not known.

The tunnel will cut an un-named, approximately vertical fault at about Sta. 171+50. The possible error of location of this fault may be as much as 200 feet. The direction of movement on this fault is not certain, but is probably up on the east side.

Summary of Geology of Claremont Tunnel.

Sta.	Thickness	Remarks
0 – 66	6600	Gravels, sandstones and shales similar to those in the west heading of the Lafayette tunnel. Orindan formation.
66 – 88+50	2250	Predominantly lavas with some interbedded fragmental volcanic materials and gravels.
68	—	Pinole fault. Location may be in error by 200 feet.
88+50 – 108	1950	Gravels, Orindan formation.
108 – 118	1000	Claremont cherts.
118	—	Wildcat fault.
118 – 171+50	5350	Chico standstone.
171+50	—	Fault; location may be in error by 200 feet.
171+50 – 180+60	900	Silica-carbonate rock; possibly some Franciscan sandstone.

Respectfully submitted,

(Signed) CHARLTON D HULIN.

University of California,

Berkeley, Calif.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. D. Filed April 20, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT E

Oakland, Cal.
Feb. 26, 1929

Prof. Geo. D. Louderbach,
University of California,
Berkeley, Cal.

My dear Professor—In the following summary of conditions and methods used in meeting them, in the excavation of the Claremont tunnel, I have endeavored to give Station numbers where I had such in my possession; otherwise set numbers.

It has appeared to me to be better for me to follow the order of progress rather than that of stationing, although that involves working against the station numbering.

We encountered a small amount of water after penetrating about twenty feet from the west portal, but the ground was firm enough to avoid spile driving or breast boarding.

At approximately one hundred feet in, as I now recall it, we encountered the formation noted in Mr. Hulins report as silica-carbonate rock. This was blocky, overbreaking in many cases, considerable.

At a distance in of approximately seven hundred feet, sand and well rounded gravel, the latter of a probable maximum dimension of approximately three inches, was encountered, carrying some water—probably about forty gallons per minute. No shooting was done in this formation, which ex-

tended for approximately one hundred sixty-five feet. There was some clay in the sand and gravel content; but the standing condition was favored by an overlying strata of almost pure clay that almost followed to line of top of cap.

When we passed thru this, we encountered about twenty feet of a rather easy breaking reddish rock that required light blasting, but offered no unusual difficulties.

The contact beyond this formation was a sort of "gumbo" that mined easily and stood well for a short period, when swelling began and it was necessary to relieve pressures wherever possible to, prevent breaking of the timber. In some cases this corrective was not sufficient, and retimbering had to be done intermittantly for about eighty or a hundred feet. This heavy, constant pressure gradually lessened as we proceeded with our excavation up to station 164 plus 00.

At that point we encountered better standing ground, that offered no unusual difficulties. Slight quantities of water was encountered at intervals up to about station 160, where the shale began to show the presence of gas in small quantities. The gas increased slightly as we proceeded forward, being most noticeable where the shale formation was broken with soft sandstone carrying a small quantity of water.

The shale worked easily and stood well for a short period, giving us time to erect six foot sets after mucking out, the spiling was placed immediately after shooting.

At set 636 a run of small particles of comparatively clean sandstone, forced out by a quantity of water sufficient to flood the tunnel to a depth of a foot for a distance of several hundred feet occurred at the end of the spiling just as preparations were being made to erect the set. About three hours thereafter there was a gas explosion that injured a number of workmen. It appears that the gas ignited as it was entering the tunnel, because the flame concentrated about the point from which the run came, and appeared to have pressure behind it.

From that point forward gas and water appeared together when the disintegrated sandstone was encountered, tho in lesser quantities.

A year or so after having passed thru this formation weight began to show in the vicinity of sets 330 to 345, and 562 to 586, 619 to 634, 816 to 823, 984 to 1002. Relieving sets were erected to hold the ground.

At station 123 plus 31 to 121 plus 91, from whence we merged from the Chico standstone section as noted by Mr. Hulin, to the Chert, concrete invert and arch were poured to take care of a ground swell and consequent weight, and to act as a deterrant to a spread of fire if oil were encountered in the cherts.

We had made it a plan to stop excavation and pour invert whenever water of sufficient quantity was encountered to make track maintainance and train operation difficult. As a consequence the invert was concreted to station 121 plus 91 when we attacked the main body of chert.

When excavation was resumed at the last named station we began to feel pressure on our right. We had proceeded about twenty-four feet when the pressure became so great that relieving sets were erected to support regular four foot sets. Suddenly water broke out alongside in a quantity of probable two hundred gallons per minute, and the pressure was relieved.

At set 1039 we encountered a large flow in a badly broken chert formation. For a few hours our pumps, having a rated capacity of eight hundred gallons could not handle it. This reduced in quantity to five hundred eighty gallons within seven hours, when the reduction apparently ceased. It was necessary to drive spiling and erect breast boards from this set 1052, when the chert showed a tendency to stiffen.

Blasting was permissible then to set 1054 when we again encountered water and badly broken chert, forcing us to again resort to spile driving and breast boarding. At set 1064 we again reached former ground which permitted blasting until set 1065 was reached when a further addition of water and bad ground forced spile driving again. At set 1069 we appeared to have found better going, tho we had later on to erect spiling before blasting the lower part of the face. This condition prevailed until the point of set 1085 was reached.

From there on until the chert was passed the ground progressively stiffened, and some heavy blasting was necessary to break the vertical chert.

Timbering was spaced up to a distance of twelve feet between sets where ground was standing well. At sets 1136 to 1139 we later had to erect two relieving sets.

Generally speaking this vertical chert did not take weight after we passed thru it.

Very little oil was found in the chert, and such as was observed was more apparent in the slippery sand following the water, which generally showed in the broken formation as we approached nearer the firmer cherts.

Leaving the chert we entered the Orindan, which was very firm and hard to break, as was the cemented gravels that frequently appeared. These materials gradually grew softer as we left the chert behind and approached the lava. Most of the oil and oil gas we encountered was found on the contact of the orindan with the cemented gravel. As we approached nearer the lava the gas decreased and the gravel increased, with water dripping in increasing amount. The orindan section, generally stood well under six foot timber spacing, but broke blocky, and did not muck well. One mucker man expressed it that it was like mucking wool.

When it was apparent we were approaching near to the lavas and water began to show evidence of decided increase, we discontinued excavation long enough to bring our concrete invert to the then face.

On resuming mining, our second shot brought us into the lava. The contact was reasonable soft, but the ground stiffened to such an extent that we found

it advisable to discontinue the use of jack-hammers and proceed with leyners. The ground drilled well and broke well and, tho containing some water, gave promise of continuing leyner ground. At station about 89 plus 00 one of the shots in the right breast penetrated a volcanic ash deposit lying in a sufficiently loose state with a large amount of water, that within three hours the face had broken in against our efforts to hold it and the ash accompanied with a flow of fourteen hundred gallons of water per minute partly filled the tunnel for a distance of sixty feet before a sufficient bulkhead to hold it could be erected. The pressure exerted longitudinally forced collar braces from one and one half inches to complete penetration of some of the eight by twelve timbers. The ash surrounded the sets so that none of them were completely knocked down.

We dropped back to Station 94 plus naught eight to 94 plus forty-eight where we had encountered very heavy swelling ground and had found full circle sets at two foot spacing, constantly relieved, not holding the ground, and concreted this section while awaiting stability of the volcanic ash section, and hoping, in the meantime, that water pressure would reduce. The quantity dropped to nine hundred gallons, and it appeared that it might be cut off from the main tunnel by a short drift to our right, which then appeared the direction of the supply. This drift materially relieved the pressure at the face for a few feet and allowed us to excavate the ash to our former face without much difficulty.

However, when we erected our breast boards and began to press forward we found the main water supply was coming from a point forward, and apparently in the line of bore. As we drove our spiling, each one a couple of inches, until a penetration of six to eight feet was accomplished, we attempted to open a small hole in the breast board at the last set and advance a new one four feet ahead. This often took hours, as the runs of fine ash with an ever increasing quantity of water made it almost impossible to make the slightest opening in our former breast boarding. We gradually advanced a small board on the end of a stull to a point four feet distant. This was our most difficult feat, and the new breast board, however small, would aid in stiffening the new face. The next board, also advanced at the end of stull was then placed, after many attempts, each stull being nailed to the cap of the last set. When two feet of new breast was well boarded, the new breast boards were put in at an elevation lower than the old breast board four feet back so that the fine material could not flow out during the placing of the new board. During all of this time we had run after run of fine material, that it took all our efforts to check—tho the total losses were never enough to cause much of a void overhead, or permit a sudden drop of material. When the new breast board was completed two feet down, one or the other of us would creep over the old breast board and place the next lower new board. This sometimes resulted in hasty retreats and near strangulation as

the runs and water attempted to engulf its intended victim; and on at least one occasion emergency pull by the remainder of the men present saved burial.

After getting thru this ash deposit, holes were made in the overhead spiling, sufficiently large to loosen and cause to run such overlying fine material as was necessary to bring large boulders that showed evidence of being there, down on the top of the spiling to forestall a possible future run and drop of material that might cause a collapse of the timbering and resultant trapping and drowning of the crew. These boulders now rest on the timbering and act as a reinforcement against a drop of others.

We encountered an ever increasing quantity of water until three thousand nine hundred twenty gallons per minute were measured on the wier. As we proceeded we encountered new flows, and the area left behind, gradually and fairly rapidly, decreased.

Spile driving and breast boarding were again necessary in broken formations carrying large quantities of water at sets 1612 to set 1606, Stations 82+92 to 82+82, 82+06 to 81+75, 80+14 to 79+84, 78+06 to 77+79, 76+28 to 76+01, 74+98 to 74+55, 75+52 to 75+27, 73+25 to 72+74, tho at no other point than the one in vicinity of Station 89+00 did we have runs that we found it difficult to control.

In some of the latter breast board places we could advance our spiling with coal picks and moils, and breast board as we pulled the muck away from the face. At other times we could breast board half way down the face and lightly shoot the toe to make mucking easier.

In cases where we found enough clay present, the star steel was difficult to free, we found augers worked better. Track laying under twelve to eighteen inches of water, we found difficult, and all timber and lagging and collar braces had to be "tied down" to prevent them from floating away and derailing trains. Wedges were a constant menace, as their size made them hard to hold and easy to float.

When we re-entered the orindan, we found it reasonably soft and blocky. Very little water and no gas penetrated it.

Very respectfully yours,

L. M. LARSON.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Six Companies vs. J. H. Dist. No. 13 etc. Deft's Ex. E. Filed April 20, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT N

(Received August 11, 1934 Joint Highway Dist No. 13.)

Builders of Low Level Broadway Tunnel

SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120
Berkeley, California

August 9, 1934

File: Construction
Time Schedule

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Dear Sir:

In regard to your recent verbal request for revised construction schedule.

Attached hereto please find chart indicating our tentative time schedule covering the various sections of the work as indicated.

Trusting that this will meet your wishes, I remain,

Very truly yours,

SIX COMPANIES OF CALIFORNIA,

By (Signed) W. R. FONTAINE.

WRF/rww
Att. sch.
CC to: Mr. A. J. Orselli
Mr. J. F. Barber

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. N. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT O

(Received Feb. 13, 1935 Joint Highway Dist. No. 13.)

Builders of Low Level Broadway Tunnel

SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120

Berkeley, California

February 12th, 1935

Mr. Wallace B. Boggs, District Engineer
Joint Highway District No. 13
1448 Webster Street
Oakland, Calif.

Dear Sir:

Referring to your letter of February 5th, 1935, we are inclosing revised construction schedule.

Very truly yours,
SIX COMPANIES OF
CALIFORNIA,
By (Signed) T. M. PRICE,
Project Manager.

TMP:k

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. O. Filed April 22, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT S

(Received Sept. 29, 1934 Joint Highway Dist. No. 13.)

Builders of Low Level Broadway Tunnel

SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120

Berkeley, California

September 28, 1934

Re. Broadway Tunnel
Tunnel Construction
Joint Highway District No. 13
1448 Webster Street
Oakland, California.

Gentlemen:

We enclose herewith one blue print of our Drawing T 15 titled Tunnel Construction and one blue print of Pacific Coast Steel Corporation Drawing T 2 A titled Proposed Location of Splices in Re-Inforcing Steel.

We attach hereto a schedule of a proposed sequence of operations for approximately the first 100 feet for each tunnel.

These enclosures and the attachment are submitted for your consideration and criticism.

We would appreciate an early appointment with you at some time to suit your convenience so that we can discuss the whole problem with you.

Yours very truly,
SIX COMPANIES OF
CALIFORNIA
By (Signed) T. M. PRICE.
ARM-K

BROADWAY TUNNEL

Sequence of Operations for First 100'
Consider Down Grade Tunnel.

Operation 1 Drive—Timber—Lag—Drifts 1 and 2—First Level.

Operation 2 Drive—Timber—Lag—Drifts 1 and 2—Second Level.

Operation 3 Drive—Timber—Lag—Drifts 1 and 2—Third Level.

Operation 4 Drive—Timber—Lag—Drifts 1 and 2—Fourth Level.

Operation 5 Drive—Timber—Lag—Drifts 1 and 2—Fifth Level.

Operation 6 Drive—Timber—Lag—Drifts 1 and 2—Sixth Level.

Operation 7 Drive—Timber—Lag—Top Drift.

Operation 8 Set Posts P—at a predetermined location, to clear the formwork and concrete to be installed.

Operation 9 Set Studs Q—which will be sawed to detail and shapes, to receive wood form sheathing.

Operation 10 Build ood form sheathing R—to the line of the concrete.

Operation 11 Pour concrete S—to the height of the ledge (indicated by construction joint).

Operation 12 Set Posts P 1-P 2-P 3-P 4—to which will be attached studding Q 1-Q-2-Q 3-Q-4—sawed to detail and shapes to receive wood form sheathing.

Operation 13 Cut Caps T-T 1-T 2-T 3—at points indicated on our Drawing #T-15, and so as to clear the formwork. Remove Posts P 5-P 6-P-7-P-8. Place temporary stulls U—if and where required by ground conditions.

Operation 14 Place Wall Plate V.

Operation 15 Place laminated centering W with its necessary support.

Operation 16 Build wood form sheathing R 1 to the line of the concrete for the complete tunneling.

Operation 17 Pour concrete to the required heights and thicknesses, removing any temporary stulls as the pouring of concrete progresses.

Drawing illustrates:

Operations 1 to 7—on the left hand side of the tunnel section.

Operations 8 to 17—on the right hand side of the tunnel section.

Operations in Upgrade tunnel, similar to those shown on the drawing for the Downgrade tunnel.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex S. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT AA

December 27, 1934

Six Companies of California
155 Sansome Street
San Francisco, California

Gentlemen:

The Government Engineer (Bureau of Public Roads of the United States Department of Agriculture acting by and through C. H. Sweetser, District Engineer, District No. 2) has authorized this District to waive the provisions of subsection (b) of section 1 of paragraph 20 of your contract dated June 4, 1934 with Joint Highway District No. 13 of the State of California to permit you to employ men on tunnel work not to exceed forty (40) hours in any one week, nor more than eight (8) hours in any one day. This waiver is based upon the application filed by you with this District on December 6, 1934 which was transmitted to the Government Engineer in accordance with the resolution of the Board of Directors of this District adopted December 6, 1934.

Joint Highway District No. 13 of the State of California, in accordance with the terms and conditions embodied in said contract and in accordance with the letter of C. H. Sweetser, Esq., District Engineer of District No. 2, said Bureau of Public Roads, dated December 19, 1934, a copy of which is annexed hereto, marked Exhibit "A", made a part hereof and incorporated herein as fully as though set forth herein at length, hereby authorizes and

permits you to employ men on the tunnel work to be performed under said contract not to exceed forty (40) hours in any one week, nor more than eight (8) hours in any one day, and upon all of the conditions and limitations and under the regulations set forth and detailed in said Exhibit "A".

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA,

[Corp't Seal] By THOMAS E. CALDECOTT, President.

By HARRY M. STOW, Secretary.

Exhibit "A"

United States Department of Agriculture
Bureau of Public Roads
District No. 2

December 19, 1934.

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District #13
1448 Webster Street,
Oakland, California.

Dear Sir:

On December 10, 1934 I received from the Secretary of Joint Highway District No. 13 of the State of California a letter dated December 8 enclosing four certified copies of the application of Six Com-

panies of California, a corporation, the contractor now constructing the project of Joint Highway District No. 13 of the State of California, known as the "Broadway Low Level Tunnel", for a waiver of the provisions of Subsection (b) of Section 1 of Paragraph 20 of the contract to permit said contractor to employ men in the tunnel work not exceeding 48 hours per week, together with four certified copies of the resolution of the Board of Directors directing that said application be submitted to the United States Bureau of Public Roads, the Government Engineer under the terms of said contract, for such action as the Government Engineer may consider proper. The Secretary requested me to advise you of my action in respect to said application.

After considering the application of Six Companies of California; the order of T. A. Reardon, Director of the Department of Industrial Relations of California, permitting Six Companies to employ men on tunnel work on the construction of the Broadway Low Level Tunnel not to exceed 48 hours in each week; and letter from R. C. Stillwell, Veterans' Representative, State of California, dated December 10, acting for Mr. John A. Stellern, State Director of the National Reemployment Service, State of California, copy of which is enclosed; Mr. Stellern's letter dated December 15, concurring in Mr. Stillwell's letter, copy enclosed; and after further investigation by the Bureau of Public Roads it is in my judgment not practicable nor feasible, particularly considering safety of workmen, to proceed

with the tunnel work on a thirty (30) hour per week basis. Under no circumstances, however, can forty-eight (48) hours per week be granted, but you are authorized to waive the provisions of Subsection (b) of Section (1) of Paragraph 20 of the contract dated June 4, 1934 between Joint Highway [206] District No. 13 of the State of California and Six Companies of California, contractor, and permit the contractor to employ men on tunnel work not to exceed forty (40) hours in any one week, nor more than eight (8) hours in any one day.

If satisfactory as to details the following classification of men performing work in the tunnel as submitted in the application of Six Companies of California, should be adopted and these men should be carried on a separate payroll:

Tunnel Shifters
Tunnel Miners
Tunnel Timbermen
Tunnel Shovel Operators
Tunnel Locomotive Operators
Tunnel Hoist Men
Tunnel Powdermen
Tunnel Brakemen
Tunnel Chuck Tender
Tunnel Mechanics
Tunnel Laborers
Tunnel Muckers
Tunnel Vibrators
Tunnel Tampers

Tunnel Form Men
Tunnel Concrete Men
Tunnel Concrete Finishers
Tunnel Cement Gun Operators
Tunnel Pump Men
Tunnel Concrete Laborers
Tunnel Drill Operators
Tunnel Electrical Workers
Tunnel Labor—Unskilled
Tunnel Plumbers
Tunnel Portable Hoist Engineers
Tunnel Power Shovel Operators
Tunnel Track Men

Yours very truly,
C. H. SWEETSER,
District Engineer.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. AA. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT BB

Builders of Low Level Broadway Tunnel
SIX COMPANIES OF CALIFORNIA
Field Office Post Office Box 120
Berkeley, California

December 26, 1934

(Received Dec. 27, 1934 Joint Highway Dist. No. 13.)

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St.,
Oakland, California.

Dear Sir:

We send you herewith three drawings which illustrate the methods we are now using in the tunnel excavation.

Drawing No. 1 illustrates the method now used in the south tunnel. According to the plan, an excavation or drift 7 ft. wide at the bottom is started at foundation level on each side of the tunnel. This is gradually carried up by means of working platforms to the crown. Muck is worked down to the bottom and is removed by a scraper operated by a hoist. When the excavation has progressed sufficiently the posts and wall plates are put in position, and then the arch segments.

Drawings Nos. 2 and 4 indicate the method in the north tunnel. This is practically a heading and bench method, but the heading is carried out in an annular shape. At the sides the bench level is at the bottom of the wall plate, which rests on the ground and which is placed as soon as the drift is deep enough. A top heading is carried on simultaneously with the wall plate drift and then the earth between is excavated. Segmental arch sets are placed on the wall plates. The muck is shoveled or wheeled and allowed to fall over the sloping face of the bench.

After segmental arches are in, the core is to be excavated by means of the shovel, the face being on a slope for greater stability. When the toe of the face slope is about three feet from the position of the next post, a place for same will be hand excavated and the post set under the wall plate.

In the south tunnel the slope of the face of the core will follow the rake of the most inclined post, and the core will be removed by the shovel.

As to the engineering work required so that we may be able to carry out the above methods: It is proposed to use a chord length of 25 feet in each tunnel and the following work would be required:

South Tunnel:

Establish center line and an offset line on each side 12′ 6″ from the center line. These lines to be established so that they can be projected forward into the excavation.

For grade, elevations giving the grade of tunnel should be established as follows: a grade 2′ 6″ above the subgrade or foundation grade of side walls; a grade 2′ 0″ above bottom of wall plate at its lower inner edge; and a grade 2′ 0″ above inner face of concrete lining at crown.

North Tunnel:

The work here is similar to that in the south tunnel. The center line of tunnel and offset lines 11′ 0″ on each side of center line will be required for alignment. For grades, the requirements will be as follows: a grade 2′ 6″ above bottom of foundations of side walls; a grade 2′ 0″ above bottom of wall plate; and a grade 2′ 0″ above top of footing block of top heading, this grade being 9 inches below the inner face of concrete lining at the crown. Grades should be so given that they can be projected with straight edges.

Both the system of excavation and the engineering involved are necessarily subject to change as the ground changes.

Your very truly,

SIX COMPANIES OF CALIFORNIA

By (Signed) T. M. PRICE,

Project Manager.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. BB. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT II

(Received April 3, 1935 Joint Highway Dist. No. 13.)

Builders of Low Level Broadway Tunnel

SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120

Berkeley, California

April 2nd, 1935

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13
1448 Webster Street
Oakland, Calif.

Dear Sir:

We are inclosing a print of our drawing No. 19, which shows the arrangement we have adopted for placing concrete in the tunnel lining. We think that this drawing is self-explanatory, but some explanation may be necessary.

When we discussed this matter in your office some time ago, we contemplated the use of 36 foot forms. We have now decided on a length of 27 feet.

While the drawing is schematic, it is intended to fairly represent the method and forms. The forms will be supported by jacks from the form carrier. In order to move the forms, the sides will be swung in and the entire form lowered.

Concrete will be brought from the central mixing plant to a double concrete pump, mounted on a car

as indicated. Moto mixers, operated only when dumping, will be used to transport the concrete. Each side of the concrete pump will be independently operated, so that concreting could be carried on in case of a break-down of one pump.

For the side walls, the concrete will be discharged through two pipes serving both sides of the form. It will be conducted by fixed spouts through openings in the forms, into final position. Short spouts, at the openings, will provide for inspection and working of the concrete if that should be necessary. It will not be necessary to move the pump outfit while pouring the side walls.

It is contemplated to pour the arch ring in the usual manner, by moving back the pipes and car as the filling advances.

Very truly yours,

SIX COMPANIES OF CALIFORNIA

By (Signed) T. M. PRICE,

Project Manager.

TMP:k

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. II. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT BBB

Builders of Low Level Broadway Tunnel
SIX COMPANIES OF CALIFORNIA
Field Office Post Office Box 120
Berkeley, California

Sept. 17, 1935

Received Sept. 18, 1935 (W. B. B.).
Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St., Oakland

Dear Sir:

Now that we have a complete survey of the condition of the tunnel timbers, we find that in a good many places it will be necessary to trim as much as six inches to obtain the required thickness of our concrete lining. In order to make the job as safe as possible, we propose to Gunite a reinforced concrete ring as shown on the enclosed sketch, supporting it where practical against rock at intervals, to give the timber the necessary stability so that trimming can be carried out just ahead of the concrete. In most places, this ring can be kept back of the neat concrete lines, but there are places where it will be necessary to let the Gunite ring encroach into the concrete a maximum of four inches. Inasmuch as the Gunite rings are a permanent material and will bond well with the concrete lining, it might be well to place some of the permanent steel in these

rings while they are being built. The encroachment into the concrete will be left rough and cleaned.

The reason for the four-inch encroachment is because it is our opinion that anything in the way of a Gunite ring less than ten inches would be of no value.

It is only proposed to use the above plan where the maximum trimming is six inches or less to get the required thickness of concrete.

We propose to try out this method, and if it proves satisfactory to everybody concerned, we will continue its use where practical and necessary, but if we find after a fair trial that it is not giving the results we hoped for, it will be discontinued.

In cases where it is necessary to trim more than six inches, it will be necessary to use some other method, which is being worked out at the present time.

We would be pleased to have your approval of this plan.

Yours very truly,
SIX COMPANIES OF
CALIFORNIA
By (Signed) T. M. PRICE,
Project Manager.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. BBB. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT KKK

Builders of Low Level Broadway Tunnel
SIX COMPANIES OF CALIFORNIA
155 Sansome Street
San Francisco, Calif.

October 8, 1935

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13 of the State of California,
1448 Webster Street,
Oakland, California.

Dear Sir:

You are hereby requested to grant permission for the undersigned Contractor to install the permanent reinforced concrete tunnel lining in all portions of the tunnel bores which have been excavated but were not lined, on September 30, 1935, with the permanent tunnel lining called for in the plans and specifications, to a section with an intrados crown position 10 inches lower than the crown position called for in the plans and specifications and with the position of the interior walls of the sides of the tunnel lining a maximum of 6 inches inside of the position provided for in the plans and specifications, and to all of the dimensions shown on Sheet 187 S of the plans, entitled: "Main Tunnel Special Section Type A Date September 28, 1935 Joint Highway District No. 13 State of California", a copy of which is attached hereto, the Contractor to install proper tran-

sitions in the special sections of the permanent lining to the sections of the permanent lining built in accordance with the original design and to make such alterations in the location of the ceilings, flues, hangers and other details of the completed structure as are determined to be necessary by the District Engineer of the Joint Highway District No. 13 to adjust the same to the special section, all without additional cost to the District for additional labor or material required to change the form and position of the section as requested.

Yours very truly,

SIX COMPANIES OF CALIFORNIA

(Signed) By S. D. BECHTEL

President

HARTFORD ACCIDENT AND INDEMNITY COMPANY, a Connecticut Corporation,

[Seal] (Signed) By A. C. POSEY,

Attorney-in-fact

FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a Maryland Corporation,

[Seal] (Signed) By GUY LeROY STEVICK,

Atty-in-fact, Agent

Attest:

D. MORTON

THE AETNA CASUALTY AND SURETY COMPANY, a Connecticut Corporation,

[Seal] (Signed) By J. C. SWEARINGEN

Attest:

R. M. SZYMANSKI

INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a Pennsylvania Corporation,

[Seal] (Signed) By HARRY C. MILLER,
Attorney-in-fact

AMERICAN SURETY COMPANY OF NEW YORK, a New York Corporation,

[Seal] (Signed) By R. D. WELDON,
Resident Vice President,

L. V. PLATT,
Res. Ass't Sec'ty

FIREMAN'S FUND INDEMNITY COMPANY, a California Corporation,

[Seal] (Signed) By JAMES J. CRISP,
Atty-in-fact

MARYLAND CASUALTY COMPANY, a Maryland Corporation,

[Seal] (Signed) By W. F. KELSO,
Attorney-in-fact,

UNITED STATES
FIDELITY AND
GUARANTY COMPANY,
a Maryland Corporation,
[Seal] (Signed) By EDW. W. COPELAND,
Attorney-in-fact

THE FIDELITY AND
CASUALTY COMPANY
OF NEW YORK, a
New York Corporation,
[Seal] (Signed) By L. F. CALLAHAN,
Attorney

GLENS FALLS
INDEMNITY COMPANY,
a New York Corporation,
[Seal] (Signed) By R. LYNN COLOMB,
Attorney

STANDARD SURETY AND
CASUALTY COMPANY
OF NEW YORK, a
New York Corporation,
[Seal] (Signed) By A. C. POSEY,
Attorney-in-fact

STANDARD ACCIDENT
INSURANCE COMPANY,
a Michigan Corporation,
[Seal] (Signed) By A. A. KAUFMAN,
Attorney-in-fact

PACIFIC INDEMNITY
COMPANY, a California
Corporation,
[Seal] (Signed) By EARL A. DAVIS,
Attorney-in-fact

MASSACHUSETTS BONDING AND INSURANCE
COMPANY, a Massachusetts Corporation,
[Seal] (Signed) By J. R. McKINNEY,
Attorney-in-fact

CONTINENTAL
CASUALTY COMPANY,
an Indiana Corporation,
[Seal] (Signed) By B. F. CATOR

NEW AMSTERDAM
CASUALTY COMPANY,
a New York Corporation,
[Seal] (Signed) By WALTER W. DERR,
Agent and Attorney-in-Fact

Sureties

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. KKK. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT UUU

Before the Industrial Accident Commission of the State of California

I hereby certify that the foregoing, consisting of twenty-eight pages, is a true and correct copy of the testimony taken at the hearing before the Industrial Accident Commission on September 24, 1935, at 2 p. m., at the offices of the Commission, State Building, San Francisco, California, said testimony being with reference to the "Broadway Tunnel."

(Signed) FLORENCE H. JONES,
[Seal] Hearing Reporter.

Dated at San Francisco, California this 6th day of April, 1938.

Attest:
(Signed) FRANK J. BURKE,
Secretary Industrial Accident Commission
of the State of California.

HEARING

Before the Industrial Accident Commission of the State of California

September 24, 1935—2 P. M.

State Building, San Francisco

Present:

T. A. Reardon, Chairman
Frank C. MacDonald, Commissioner, I. A. C.
Frank J. Burke, Secretary, I. A. C.

F. L. Lowell, Industrial Accident Commission
L. K. Reinhardt, Industrial Accident Commission
J. I. Ballard, Editor, Western Const. News, S. F.
Jack Norton, Tribune, Oakland
O. W. Peterson, Six Companies of California
Thos. Soule, Chief Engineer, Industrial Ind. Exchange
S. M. Jarrett, Safety Engineer, Ind. Ind. Exchange
J. O. Barlow, Utah Construction Co.
V. G. Hindmarsh, Six Companies
T. M. Price, Six Companies
George D. Whittle, U. S. Bur. Public Roads
B. Modglin, 200 Financial Center Bldg., S. F.
S. D. Bechtel, President, Six Companies
T. L. Phillips, Engineer, Western Pacific R. R.
D. Young, MacDonald & Kahn
Mason D. Pratt, Engr. Sureties
Max Thelen, Atty. for Six Companies
DeLancy Smith, Atty. for Six Companies
A. B. Tinning, Atty. for Highway Dist. No. 13
Mr. Boggs, Engineer, Highway Dist. No. 13

Mr. Reardon: Gentlemen, the reason we called this hearing is with reference to the tunnel known as the "Broadway Tunnel." There has been an accident over there, an unfortunate accident, and our only duty with reference to that tunnel is the safety.

We have nothing to do with how the tunnel is designed—right or wrong—but the safety of the men working there is what we are interested in. We have Mr. Reinhardt here, who is an engineer of this Commission, and he has filed a report with the Secretary, Mr. Burke, which I will ask that Mr. Burke please read.

Mr. Burke: This is an inter-communication from the Department of Safety, dated San Francisco, September 19, 1935, addressed to the attention of Mr. Reardon, Director, Department of Industrial Relations, subject:

"Broadway Tunnel."

"As per your telegram of September 17th, I made an inspection and survey of the Broadway Tunnel this date and found the following conditions:

"There is approximately 1800 feet of full section tunnel which is timbered and I would estimate that 75 percent of this timbering has to be removed and set back in order to clear the forms on Design A, the original design, before concreting can be done.

"The investigation of the cave-in on August 28th, in which three men lost their lives was the result of moving back one of these timber sets. As far as my investigation could determine this work was being done in a careful manner according to standard practices and the cave-in therefore was not the fault of the mechanical operation, but due to a peculiar formation in

the earth above the tunnel section, which possibly permitted a crust to form with a void back of the crust, allowing a major slide to occur once it started, thereby breaking two or more sets of timbering.

"My opinion is that in disturbing the present timbers we are inviting a similar cave-in in one or more places of the 1800 feet of timbered section.

"On September 2nd, Mr. Fry advised the Six Companies that he had been in consultation with the consulting engineers, Messrs. Tibbitts and Phillips, and agreed with their recommendation that the timbers should not be disturbed, that the forms should be lowered to clear the encroachment on the tunnel section by the shifted timbering. Mr. Fry's letter recommended that this be done.

"I understand consulting engineers Lippincott and Van Norman also recommended the lowering of the form and not disturbing the present timbered sections.

"Up to Saturday, September the 14th, it was tentatively agreed by the Six Companies, the Joint Highway District and P. W. A. that the forms would be lowered 8" and the timbers not disturbed, but this agreement was cancelled due to some legal objections on the part of the Joint Highway District and the scheme was called off. The Joint Highway District then notified the Six Companies that they were to

abide with paragraph E, Section 32, page 60, which states in part 'timbers found to project within the concrete lines shall be removed and reset before concreting.'

"At the time of my inspection this work was getting under way. As I considered it a serious hazard to disturb the timbers, I urgently recommend that the Commission issue a Special Order requiring both the Joint Highway District and the Six Companies not to remove and reset the timbering but to either lower the forms or submit to this department some other plan for approval whereby the timbering will not be disturbed."

Mr. MacDonald: Gentlemen, I have just started a paper along the line, which I ask that you sign, so that we may know who is present today.

May I suggest that the law of the State of California, that is, the Workmen's Compensation, Insurance and Safety Laws, prescribe in part, Section 34:

"Sec. 34. Every employer shall furnish employment which shall be safe for employees therein and shall furnish a place of employment which shall be safe for employees therein, and shall furnish and use such safety devices and safeguards, and shall adopt and use such practices, means, methods, operations and processes as are reasonably adequate to render such employment and place of employment safe, and

shall do every other thing reasonably necessary to protect the life and safety of such employees."

Section 35 continues:

"No employer shall require, permit or suffer any employee to go or be in any employment or place of employment which is not safe, and no such employer shall fail to furnish, provide and use safety devices and safeguards, or fail to adopt and use methods and processes reasonably adequate to render such employment and place of employment safe, and no such employer shall fail or neglect to do every other thing reasonably necessary to protect the life and safety of such employees, and no such employer shall occupy or maint in any place of employment that is not safe.'

The Industrial Accident Commissioners recognize the fact that largely due to the formation in which the tunnel is being driven, we have a very hazardous undertaking. The timber is now holding the ground, but there has been a shifting of the ground, and, basing our opinion and judgment upon the reports of our investigators, we are very fearful that moving any of the timbers, prior to putting reinforced concrete in, may cause, and, we fear, will cause the loss of additional lives. Now, it is in our province or duty to tell contractors just how they shall do the work. The laws impose the responsibility of safe employment upon the contractor. We have heard conflicting reports and stories concerning methods of operation. We are satisfied that it is the earnest

desire of all parties concerned to have the work done under safe conditions. We have issued an order which has interfered with the continued progress of the work directing all timbering in both the north and south tunnels shall not be removed and reset before concreting; and (2) The concrete forms may be lowered sufficiently to clear encroachments in the tunnel section, or some other plan, whereby the timbering will not be disturbed, may be submitted to the Commission for approval.

It is our desire now to ascertain what determination, if any has been made as to further procedure of the work, that is going to be safe for the lives and limbs of the workers therein.

Mr. A. B. Tinning: I am the attorney for the Highway District. May I say that you have expressed the opinion of the Board of Directors respecting the desire of having all possible precaution respecting risk, taken. However, we are very anxious that in this order a valid order be made by the Commission, in which it has jurisdiction, and we communicated with you on September 20th, asking that a formal hearing be held, because, as we understand our provisions of the Workmen's Compensation Act, it is necessary before a special safety order is made, that a hearing be held, and I assume that it will be satisfactory to use as evidence at this hearing, Mr. Reinhardt's report, as a basis for the finding that operation as conducted, in the opinion of the Commission, is not safe, and if that is done and is stipulated to by the attorneys for the contractor, we are ready to offer the recommenda-

tion as a plan for our side of the matter.

Mr. Thelen: I am one of the atorneys for the Six Companies, and will be very glad to stipulate according to Mr. Tinning's suggestion.

Mr. Tinning: Mr. Boggs, I think you have prepared a tentative plan?

Mr. Boggs: I have—I am District Engineer.

Mr. Tinning: I will say, Gentlemen of the Commission, that this plan is a development of various discussions at previous times, and the result of close work done since this order was issued on September 19th. It is entitled: "Preliminary—Joint Highway District No. 13, State of California, Alameda County, Contra Costa County—Modification, Type A Section," and I would like to have Mr. Boggs, for the purpose of the record, read a statement which has been prepared, respecting this plan and the manner in which it is offered, as a proposal.

Mr. Boggs (reading):

"The recommendation for a modification of the plan for the Broadway Low Level Tunnel which follows, is made solely because of the delay of the Contractor in placing the permanent reinforced concrete tunnel lining in the portions of the tunnel bores which have been excavated——

Mr. Tinning (interrupting): Excuse me. I should state in making this statement, we do not want to be put in the position that our silence may not be construed as an omission. We want to just

state our position in connection with offering this plan—but we waive no rights.

Mr. Reardon: Mr. Tinning, we always carry our meetings on as an open forum, so that any one who has ideas on safety—we will allow them to speak on that subject.

Mr. Tinning: Thank you.

Mr. Boggs (reading):

> "The recommendation for a modification of the plan for the Broadway Low Level Tunnel which follows, is made solely because of the delay of the contractor in placing the permanent reinforced concrete tunnel lining in the portions of the tunnel bores which have been excavated, but not lined with the permanent lining called for in the plans and specifications."

Mr. Thelen (Interrupting): Reference is made to the delay of the contractor. We do not concede that there has been any unreasonable delay of the contractor. It seems to me that the only thing the Commission is interested in, is the safety and what shall be done to make safe conditions.

Mr. Reardon: This is an open forum. You people realize I was President of the Board of Public Works, and I carried on the work of public works in the same manner, as I am now, with the assistance of Commissioner MacDonald, and I will allow Mr. Tinning to submit his evidence.

Mr. Tinning: I am not asking that anything be conceded. We only want our definite statement as to our position, as an excess of precaution. We

waive nothing in connection with this plan. We are simply trying to state our position, not trying to put it to the side.

Mr. Thelen: I may suggest that if references of that kind are made, we may have to introduce evidence tc show that the references are not justified. We do not admit there has been any delay.

Mr. MacDonald: I hardly think we will rule on the statement, but we will recognize and are compelled to recognize Mr. Thelen's right to file with this Commission any supplemental statement he may desire, setting forth the position of his clients.

Mr. Thelen: I think that is very very fair.

Mr. Boggs (Continuing reading):

"These open sections of the tunnel bores are supported by temporary timber supports which have been generally intruded into the space necessary for placing the permanent tunnel lining in accordance with the Plans and Specifications. If the permanent lining had been installed promptly after excavation the present condition of the timbers would not exist.

"To eliminate so far as practical the demonstrated hazard to the lives and safety of workmen arising from resetting the temporary timber supports, and, at the same time to provide a structure equal in strength and capacity to the original design, a modified design is recommended. In making this recommendation, or in its later authorization, it is not intended in any respect to admit the modification is made

because of any demand, claim, or contention of the Contractor which has heretofore been communicated to the Joint Highway District No. 13 of the State of California, or to any of its officers or employees, and the District if the modification is authorized, waives none of its rights under the contract dated June 4th, 1934, with the Six Companies of California.

"The District Engineer recommends as a design for the permanent reinforced concrete tunnel lining for those portions of both bores of the Broadway Lower Level Tunnel, which are now excavated and supported by temporary support, and in which the permanent tunnel lining has not yet been placed, a section with an intrados crown position 10 inches lower than the present designed crown position, the position of the sides of the tunnel lining 6 inches inside of the present designed position, and to all of the dimensions shown on the preliminary plat of Joint Highway District No. 13 of the State of California, entitled, 'Modification Type A Section—Sept. 21, 1935.'

"This recommendation is that said modification in dimensions of the permanent reinforced concrete tunnel lining be authorized by the District, under all of the terms of the Contract, plans and specifications, for the sections of tunnels now open and unlined, the Contractor to be paid therefor at the price per lineal foot as provided in the contract of June 4, 1934 (extra

concrete necessary to fill the space left by the contraction of the dimensions of the tunnel lining, to be furnished by the Contractor at its own cost), all reinforcing steel required in the construction of the modified section to be paid for by the District at the unit price provided in the contract of June 4, 1934; the proposed modification of the tunnel lining will not apply to the portions of the tunnel bores which are already lined, nor to any portions which are not now fully excavated and supported by temporary timbering supports; and the Contractor will be required to excavate, and to install the permanent reinforced concrete tunnel lining in all parts of the bores not yet fully excavated, to the dimensions specified in the original plans and specifications, and to install proper transitions from the modified sections to the sections of lining built to the original design, and to make such alteration in location of the ceilings, flues, hangers and other details of the complete structure are determined necessary by the District Engineer to adjust such portions to the modified sections, all without any extra charge to the District, and at the prices provided in the contract of June 4, 1934.

"Before the above recommendation is finally approved by the Board of Directors of the Joint Highway District No 13, it is subject to the approval by the Director of the Department of Public Works of the State of California, and

the proper officials of the Bureau of Public Roads, and/or the P. W. A. of the United States, after which the Board of Directors of the Joint Highway No. 13, will act upon the recommendation for the modification."

Mr. Reardon: I realize that all of that has no bearing on the case—only the recommendations for safety. You have data in there that affects the construction of the tunnel, and we are not interested in the price of the tunnel, or the change of the plans—our only interest is for safety. If you have such recommendation for the safety of the men working in the tunnel, the Chairman will entertain that. You are protecting yourselves, protecting a price or an agreement which will be made between you. You can take the parts out which are for the recommendation of safety, and the Chairman will entertain any part of that.

Mr. Tinning: We shall be very glad to have the Commission take any part it may desire, but we will not waive any rights. We are not submitting it as evidence. We are submitting it as an offer or a plan which is for the purpose of affording safety, and those provisions are not intended to change the force of the contract, but they are placed there so we will not change our position. That is the only purpose. We do not ask the Commission to take any action on that—but we do not wish to waive our rights. We have this plan which we are ready to offer, and it is offered with the direct understanding that we do

not expect the contractor to change his position and we will not change ours.

Mr. MacDonald: This Commission issued an order practically prohibiting the moving of timbering until such time as the concrete is in place. We also went beyond our real rights, as far as the contractor is concerned by stipulating that concrete forms may be lowered sufficiently to clear encroachments in the tunnel section, or some other plan whereby the timbering will not be disturbed, may be submitted to the Commission for approval. We can only pass on that, as Commissioner Reardon has pointed out, with one thought in mind—safety.

The drawing you submit and the statement you have just read is submitted for the purpose of giving assurance to the Commission that so far as the District is concerned, you are willing to accept a modification of the original plan to the one herein indicated, but you are serving public notice at the same time that you relinquish none of the legal matters in the District made between the District and the contractors, and, in the latter matter, we have no authority to pass any opinion or judgment. It would be void—it would be of no force and effect, but we have the right to insist upon safety. We appreciate the spirit in which the District is acting in the matter for the protection of human life. I can see no reason, Mr. Chairman, why the entire statement cannot be incorporated in the record, subject to the conditions you have stated, and assurance of this given to Mr. Thelen, that the legal

rights of his clients can be safeguarded to any extent that he feels they should be safeguarded, by a supplemental statement that can be filed with the Commission, and made of record.

Mr. Thelen: That is agreeable; but unless we are driven to it we will not file a supplemental statement. We feel that there is much in that statement that is not material here. We think there is a good deal that is immaterial, and the Commission has not jurisdiction. The arrangements between the District and contractors we are not interested in—we are only interested in the safety features. In that statement reference is made to the situation shown on the blue print—that goes directly to the safety. As I understand it, it is intended to lower the crown some 10 inches, to be filled in with concrete, and over here (referring to blueprint) on each side the concrete is to be poured some six inches or so beyond the original plans and specifications, for the purpose of strengthening the structure, and making it unnecessary to remove timbers, and that is the thing for which the Commission is driving.

Mr. Tinning: There is no change made for the purpose of strengthening the structure. The purpose is to prevent the necessity of having to reset or trim timbers, and we do not for one moment concede that the structure is any respect strengthened by that proposal.

Mr. Reardon: Mr. Reinhardt, you have heard the reading of that communication?

Mr. Reinhardt: Yes.

Mr. Thelen: We are trying to avoid a controversy, and the necessity of filing a supplemental statement—if it may be understood that we do not agree with some of those statements—I think we will avoid the filing of the supplemental statement.

Mr. Tinning: That is stipulated, as far as the Highway District is concerned.

Mr. Boggs: That stipulation will be to what effect?

Mr. Thelen: To the effect that we do not agree with those portions of the statement which has been read which do not relate directly to the safety matter.

Mr. Reardon: The Chairman rules on that point—there is lots in that statement that does not relate to safety.

Mr. MacDonald: In order that we may understand Mr. Thelen—your clients, the Six Companies, are agreeable to proceeding with the work in conformity with the modified design herein indicated in conducting the work—that is, placing the concrete in before they attempt to remove timber, in order to insure safety?

Mr. Thelen: I would like to have our engineer, Mr. Peterson, answer that question directly—if he will.

Mr. O. W. Peterson (Engineer for the Six Companies): This plan will eliminate almost in its entirety, the necessity of moving timbers. It will be necessary still to move a very limited number of timbers, and it is planned in doing that to build

up the very substantial framework called a square-set, in the place of those timbers—and I think that work can be done under the supervision of one of your safety engineers. The safety of the District requires a certain minimum thickness of concrete to get the proper theoretical section of the tunnel, and it is not possible to entirely avoid the necessity of some of that work. I would say that that special amount of timber work should and can be done under the supervision of the engineer of the State Commission.

Mr. Thelen: Based on the statement of Mr. Peterson, that answers my question directly—that we are willing to proceed under an order to be made by this Commission, and under order of the District.

Mr. Tinning: I think, Gentlemen, that if we consider the legal situation, believe that it is necessary to have another order, because I do not think the order of September 19th—there might be some question about it, unless there had been a hearing preceding this.

Mr. Thelen: The Company accepted the order in the spirit in which it was made, and we are continuing to obey it until it is changed, and we are not raising the point no notice was given.

Mr. MacDonald: Mr. Boggs, do you feel that the order as of the date of September 19th is sufficient, or was it simply the legality of the order that you had in mind? Did you feel that the order should be amplified?

Mr. Boggs: The order as it exists here would not fully cover the conditions as set forth, and in that it states that all timbering shall not be removed, and follows in paragraph 2 "whereby the timbering will not be disturbed,"—as Mr. Peterson stated, there will be some sections where it will be necessary, under this modified plan, to alter the timbering.

Mr. MacDonald: If the order were modified to read: "All timbering in both the north and south tunnels shall not be removed and reset before concreting, except in such cases where square-sets are substituted for present timbering, and that the timbering thereafter be removed."

Mr. Boggs: I believe that would clarify it.

Mr. Tinning: As I understand the matter at the present time, there will be a certain amount of timber which will have to be trimmed or reset, but it would not be so removed—it would be only the square-sets that would be removed. The vertical segment and arch would stand.

Mr. Peterson: I think the word "reset" is what the discussion really pertains to.

Mr. Reardon: Could the specification read that where out of alignment they should be taken down and reset—that is removing. Now, isn't it a fact that in some of the timbers, there are four inches on each side out of alignment in that tunnel? Now, if that is carried out, we should have to take them down and set them up again, is that not right?

Mr. Peterson: Substantially so, and we would have some other construction to hold it while that is being done.

Mr. Thelen: May I make a suggestion which is directed to the same end you have in mind—so that it will read: "Timbering in both the north and south tunnels shall not be removed and reset before concreting, except in such special instances and under such conditions as the representative of the Industrial Accident Commission on the ground may authorize." That would give you absolute control of the situation.

Mr. Tinning: That would be satisfactory, providing it be understood that there be no intrusion under that section. We expect to have that modified plan there to follow—without intrusion of timber.

Mr. MacDonald: I think it leaves it exclusively in your authority. It is simply with regard to moving the timber.

Mr. Tinning: I thought the wording was such that it might be thought that we would be eliminating consideration of this modified section. It gives you ten inches right there. It only carries where your timbers have intruded more than that, and you eliminate a very large proportion on movement.

Mr. Reardon: That is the business of Mr. Reinhardt and Mr. Lowell of this Commission, and nothing is taken up without their recommendation, or passed upon by Mr. Reinhardt, who is our engineer. Your specifications read just what I have repeated, and Mr. Reinhardt said if you trim, it takes out the tensile strength.

Mr. Tinning: I hope that the order can embody some reference to this section, so that there may be no misunderstanding.

Mr. MacDonald: My thought was that the one clause, amplified as suggested in the language of Mr. Thelen, would cover the entire situation, and that the Commission would rescind the second one, which is not an order, and that will leave it one order dealing solely with the question of timbering, as the order of the Commission, and will recognize, perfectly agreeable I am sure, to the company, the right of the District to reset these, if the contractor accepts this modification of size, and that will be strictly a matter between you and the contractors.

Mr. Tinning: That is satisfactory, providing the order itself is clear with respect to some plan. I did not want it to say that all timber shall not be reset by concreting—it would have to be all timbering outside of this section may be moved under the direction of the Commission, or in a manner satisfactory to the Commission's engineers—something of that kind.

Mr. MacDonald: Can't we add to the clause—it is what you suggested, Mr. Thelen—say, for instance, so that the work may be constructed in accordance with the agreed modified construction plans contained in "Preliminary Joint Highway District No. 13, State of California, Alameda County, Contra Costa County, Modification Type A section," dated September 21, 1935. That will identify it. Is that perfectly agreeable?

Mr. Reardon: We have heard from the contractor's engineer and the District's engineer, but we have not yet heard from our own engineer, and,

as I said before, our guiding spirit is the engineer, and before we submit this, I would like to hear from our Mr. Reinhardt. You people have seen this blueprint—have you seen it, Mr. Reinhardt?

Mr. Reinhardt: Yes.

Mr. MacDonald: Mr. Reinhardt, do you feel that the modified construction will be a safe construction—for the purpose of the stipulations we are setting forth here today, for the completion of the tunnel work?

Mr. Reinhardt: Well, it is an improvement of about forty percent over the old method. We will never get one hundred percent, because the encroachments are too large in some places as much as 12 inches. I do not think it would be practical or possible to design a form that will clear the encroachments, but this will clear conditions anyway fifty percent, and with supervision over the removing the timbers, in which we cannot use this form, I do not see but what it can be done safely. Mention was made of square-setting—of course, the whole tunnel can be square-setted, but time is the essence of the hazard of this tunnel, and to square-set the tunnel will probably take four or five months, and in the four or five months, I would say the tunnel would probably be the same as it is today—so we are speeding the work, and I would estimate that in five weeks we would probably have the tunnel lined, and in the few cases where we have to take the timbers out, it can be safely done under the square-setting, and the proposed supervision. There is

nothing more that I can add. This is a mighty fine scheme, and think that it should be done. In my estimation I think it is the maximum that can be done and still keep our original tunnel.

Mr. MacDonald: In order that I may be clear—it is the intent to only use square-sets where timbers are to be removed?

Mr. Boggs: That is up to the contractor.

Mr. Reinhardt: That is up to the Commission it might have to remove these timbers.

Mr. MacDonald: But there is no intention for the substitution of the general construction with square-sets—it is only to use square-sets where you have to remove the timber in order to put in the proper concrete form.

Mr. Tinning: The District does not control the matter of construction; you will have to ask the contractor.

Mr. MacDonald: It is my understanding that square-sets are only to be used in such cases where you have to remove present timber.

Mr. Peterson: That is correct. We are using a rather popular term when we call them square-sets—it is square-setting—I think that might be a little nearer the proper statement, or I would say other equipment in construction, acceptable to the safety engineers—I think the safety engineers should govern, even in the use of the square-setting method.

Mr. Thelen: That is why I made the suggestion leaving the authority in all special cases in your own hands.

Mr. Reardon: It leaves the responsibility right up to you, then, Mr. Reinhardt.

Mr. Reinhardt: There is no objection to that.

Mr. MacDonald: Mr. Thelen, you wouldn't take unfair advantage?

Mr. Thelen: Absolutely not—I think you are absolutely competent.

Mr. Reinhardt: There is no objection to assuming responsibility, and the only difficulty is the time allowed for inspection. If I am to be there every day, I will be glad to assume responsibility for what I know, with the capable assistance of Mr. Jarrett, who is there, but, of course, I could not be responsible when I am not there. If I am on the bridge, I could not be over on the tunnel, and that is the drawback to the arrangement it seems to me.

Mr. Tinning: Would there be any chance of assigning this gentleman for the four or five weeks that it would take to complete this emergency work, and keeping him there?

Mr, Reardon: No. This Department is unfortunately curtailed not only for the tunnel work, but every department. Mr. Reinhardt, you say this plan would increase the efficiency about 40 percent, but never 100 percent, and then further on in your testimony you said 50 percent better than at the present time. How far would you go on record here that this plan submitted, these blueprints submitted, are as near as possible of making that tunnel secure?

Mr. Reinhardt: Yes, I think I have made that statement. In other words, the plan is the maximum that we can obtain in point of design and still maintain our original tunnel.

Mr. Reardon: As a safety measure, you don't question the designing of that tunnel do you?

Mr. Reinhardt: No, not at all. What I was thinking of when I mentioned the original tunnel was the size and amount of clearance, and so forth.

Mr. Reardon: Are you familiar with these blueprints?

Mr. Reinhardt: Yes.

Mr. Reardon: And you, Mr. Tinning, are you familiar with them?

Mr. Tinning: As much as I am with any blueprints—I can't read them.

Mr. Reardon: Mr. Boggs, you are familiar with the blueprints, and that they are acceptable to you people?

Mr. Boggs: Yes—this is acceptable to us.

Mr. Thelen: We have stated on the strength of Mr. Peterson's statement that is agreeable to us.

Mr. Peterson: We understand this to be a preliminary drawing. We have steel forms already built, and we will assume that the steel forms which we have can be modified in a reasonable way to build this structure, and I think we understand each other on that point, and the contractor is willing to make these modifications.

Mr. Reardon: Well, the three people interested are satisfied. Now, Mr. Lowell, we have not heard from you—you know that tunnel—what is your opinion?

Mr. Lowell: I am not on the tunnel now, but my recommendation to the Commission is that this be the plan—that is, lower the forms so that they could put in the concrete of the proper thickness, without removing the timbers. I made three recommendations, and the first and second were not acceptable, could not be agreed upon, and then the third one, which was the least to be desired.

Mr. Reardon: Read the report, Mr. Burke.

Mr. Burke (reading):

"1. The writer recommends that the Joint Highway District engineers and the engineers for the Six Companies of California agree upon a plan whereby the concreting of the remaining unconcreted portion of the tunnels be done by lowering the forms in the arched section sufficiently so that it will not be necessary to remove and reset new timbers or cut back the present timbers. In that portion of the tunnel where it is necessary to support the timbers, wooden forms shall be constructed around the timber supports and after the forms have been removed, the supports shall be removed and the holes filled with concrete. Other portions of the tunnel where timbers are not supported, steel forms for concreting might be used.

"2. If No. 1 recommendation is not agreed upon, the writer recommends that structural steel shapes be used for tunnel sets and these sets are to be placed between the present wooden sets and allowed to extend 4 inches beyond the neat line of the concrete structure if necessary. This is allowed under Section 32, paragraph 5, under the heading of 'overbreak.' The wooden timbers may then be trimmed back to the neat line and the pouring of concrete proceed as in No. 1.

"3. If numbers 1 and 2 are not acceptable, then the writer recommends supports of all timber sets in heavy ground by square sets and timbers cut back a reasonable distance and others replaced where they have encroached too far. The concreting shall be done with built-in wooden forms and the timber supports removed after the concrete has set and the holes filled with concrete. This suggestion is less desirable than No. 1 or No. 2 but in the opinion of the writer can be done successfully and safely.

"4. It is recommended that in future the arch timbers shall consist of 8 segments instead of 7. In other words, instead of there being a flat top segment, there shall be two segments. The cost of this change, including the added concrete cost, in the judgment of the writer, should be adjusted as is provided under the heading of 'adjustments' in Section 6

of the General Provisions in the Specifications, page 5, paragraph (g), which reads as follows:

"Alterations: 'In case of reduction or increase in quantities of work, by reason of alterations or any cause whatsoever, the Contractor shall accept payment in full at the contract unit prices for the actual quantities of work done and no allowance will be made for anticipated profit due to such reduction or increase.'

"5. It is suggested that in future, the open portion of the fully excavated tunnel be concreted as near to the face of the excavated core as can be done safely without injury to the concrete from blasting and this concreting continue simultaneously with the driving of the headings

(Signed) FRED L. LOWELL."

Mr. Reardon: An objection, Mr. Boggs?

Mr. Boggs: No. I think Mr. Lowell's recommendations, in general, are possible to follow and probably will meet the conditions for safety and accelerate the work .

Mr. Reardon: Mr. Peterson, you heard that?

Mr. Peterson: I think Mr. Lowell's statement covers quite a number of details, some of which we would make use of in the actual work of building forms, etc., and this is what we refer to in the general statement of Mr. Thelen's outline. I think Mr. Thelen's statement, with the addition that was added, covers the thing in a very broad manner.

Mr. Reardon: Mr. Reinhardt, you are familiar with that?

Mr. Reinhardt: That is all right. I think it is along the same lines we are working.

Mr. Reardon: Well, there will be no disagreement when I get through. You fellows will all agree.

Mr. MacDonald: May I ask this question. It is my understanding that there is urgent need of placing the concrete just as rapidly as possible. Am I correct in understanding that it is the intention of the contractors to proceed forthwith with the tunnel lining with reinforced concrete, prior to doing any further excavation work in the two headings?

Mr. Thelen: Yes, that is correct.

Mr. MacDonald: I wish the record to show that.

Mr. Thelen: And furthermore, if I may suggest at this time—I would like to ask Mr. Tinning as to whether it is agreeable to the District if the Commission makes an order along the lines here agreed upon, that we should go ahead and do the work without waiting for the formal order?

Mr. Tinning: It is entirely agreeable with us, I can say for the Board of Directors and Mr. Boggs, that we do have this factor we should consider. I think from our discussion with the State, it will take about 48 hours to get that from the State, but we don't know how long it will take to get the special approval from the Bureau of Public Roads, because it has to come from Washington. We

started the movement as soon as we received this order, we started the machinery of getting it moving rapidly, and we understand it will be given us by wire from Washington, but there may be some delay in that, but we have everything ready, and we will move as rapidly as possible, but it is possible we may have some suggestion from some one in Washington, but as far as the District is concerned, within its power, we are willing to go ahead on that basis.

Mr. Thelen: May I say that I realize that, and that was the reason why I asked the question. I wanted to know if we couldn't go ahead, giving the District the time necessary.

Mr. Tinning: I understand you have 100 feet of the tunnel section where you can go to work immediately without having to reset the timber.

Mr. Peterson: That is only with one set of forms. We are anxious to get all four sets going. We can then work about five times as fast.

Mr. Tinning: In view of our past experience I am rather hesitant to say "sure," because I know there may be some holdup in Washington, but everything seems favorable to proceed immediately.

Mr. Thelen: Then may I say to the members of the Commission, if the Commission will get the order that is agreeable, we will go ahead right away, on the assumption that we will get an order from the District, and will not wait for the technicality of this consent from Washington.

Mr. Tinning: I am speaking for the District, but with the reservation that we do have to finally get this order from the P.W.A., or the Bureau of Public Roads, whichever one has jurisdiction in this matter, to make an order authorizing us to make this change—we cannot do it until we have that authority, and we started Friday trying to get that through.

Mr. Reardon: Mr. Peterson, you made some statement that the position of the work could go ahead without referring to the original design of the tunnel?

Mr. Peterson: There is about 200 feet of the tunnel which can be lined. We are anxious, however, the contractor is anxious to work at about four other places, so that we may proceed five times as fast as it is now proceeding, because, as Mr. Reinhardt points out, we have not only the matter of handling timber, but we have the problem of the weather, which will affect the situation materially, and will add to hazards, so time is a very important factor.

Mr. Reardon: Mr. Reinhardt, is that your opinion also?

Mr. Reinhardt: Yes, sir.

Mr. Reardon: That is about all we can do—to proceed with this job under this blueprint.

Mr. MacDonald: May I ask a question of the engineer of the Six Companies? In the recommendation of Mr. Lowell here, he states: "It is recommended that in future the arch timbers shall

consist of 8 segments instead of 7. In other words, instead of there being a flat top segment. there shall be two segments." Mr. Lowell makes that recommendation, because he feels it is practically a flat arch on the top two segments, and he is fearful you may have another cave-in. Is it your intention to change from a 7 segment to an 8 segment arch there?

Mr. Peterson: I would say, with regard to that, that if it is necessary to use a heavier member on the top, the contractor will do that. We will do anything that is necessary to make that timbering safe.

Mr. MacDonald: Yes, the heavier timber abutting on the lighter frame below, safeguarded. It is not the question alone of the size, but it is the thrust of the ground coming down on that.

Mr. Peterson: I don't think I am prepared to speak on that point. I would rather leave the situation in the position that the contractor will be glad to go over this matter with the Engineer of the Commission, and give it thought, and not give an answer off-hand. We can assure the Commission, however, that we will follow construction which is safe and sufficient for the condition, so far as the size and shape of the timber is concerned. We would rather give more careful consideration to the number of timbers or changes.

Mr. Reardon: Does any one want to say anything further before we leave this room?

Mr. MacDonald: Mr. Muire, you have built a wonderful tunnel that is standing up.

Mr. Thelen: May we thank the Commission for the consideration you have given us.

Mr. MacDonald: Gentlemen, we thank each and every one of you who have come here and assisted, and we appreciate the fine spirit that has been shown here, and we hope with your cooperation, that we will finish the tunnel without any further catastrophe or loss of life.

Mr. Bechtel: We want to do whatever we can in the safest way possible, and will cooperate with you and with the District, and we shall continue to do so.

Meeting adjourned.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U U U. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT XXX

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held July 10, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From June 4th, 1934 to June 30th, 1934

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. 1
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	.....	23,800	23,800	Cu. Yds.	$ 0.33	7,854.00
2	Overhaul	.....	20,000	20,000	Sta. Yds.	0.005	100.00
3	Structural Excavation—Class "A"	.....	7,300	7,300	Cu. Yds.	1.20	8,760.00
4	Structural Excavation—Class "B"	.....	.....	.....	Cu. Yds.	2.00	.....
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	.....	.....	.....	Lbs.	0.04	.....
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	.....	.....	.....	Cu. Yds.	15.50	.....
9	Concrete Structures—Class "B" Concrete	.....	.....	.....	Cu. Yds.	14.50	.....
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	.....	.....	.....	Lin. Ft.	1.30	.....
21	Corrugated Metal Pipe Culvert—12 Inch	.....	.....	.....	Lin. Ft.	2.00	.....
22	Corrugated Metal Pipe Culvert—18 Inch	.....	.....	.....	Lin. Ft.	3.00	.....
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	.....	.....	.....	Lin. Ft.	1.20	.....
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	.....	.....	.....	Lin. Ft.	1.50	.....
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	.....	.....	.....	Lin. Ft.	1.80	.....
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	.....	.....	.....	Lin. Ft.	4.40	.....
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	.....	.....	.....	Lin. Ft.	8.50	.....
29	Vitrified Pipe Sewers—6 Inch	.....	.....	.....	Lin. Ft.	1.00	.....
30	Vitrified Pipe Sewers—8 Inch	.....	.....	.....	Lin. Ft.	1.20	.....
31	Manholes—Standard Tops	.....	.....	.....	Each	90.00	.....
32	Manholes—Inlet Tops	.....	.....	.....	Each	100.00	.....
33	Manholes—Grating Tops	.....	.....	.....	Each	90.00	.....
34	Storm Water Inlets—34 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	.....	.....	.....	Each	100.00	.....
36	Storm Water Inlets—"C"	.....	.....	.....	Each	80.00	.....
37	Lamp Holes—6 Inch	.....	.....	.....	Each	24.00	.....
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	.....	.....	.....	Each	36.00	.....
40	Hand Hole	.....	.....	.....	Each	30.00	.....
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	.....	.....	.....	Lin. Ft.	1.40	.....
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	.....	.....	.....	Lin. Ft.	0.80	.....
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	.....	.....	.....	Cu. Yds.	5.00	.....
46	Metal Cribbing	.....	.....	.....	Lbs.	0.15	.....
47	Stone or Gravel for Foundations	.....	27	27	Cu. Yds.	3.00	81.00
48	Tunnel Construction—Type "A"	.....	.....	.....	Lin. Ft.	325.00	.....
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	.....	1%	1%	Lump Sum	$40,000.00	3,400.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	210,000.00	.....
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	20,195.00
Deductions—25% of Work Done	5,048.75
Deduction—$100,000	.....
Deduction—10% of Work Done	.....
Total Due to Date	15,146.25
Previous Payments	.....
Balance Due on This Estimate	15,146.25

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held November 6, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From October 1, 1934 to October 31, 1934

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Five
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	414,256	204,614	618,870	Cu. Yds.	$ 0.33	204,227.10
2	Overhaul	280,000	1,000,000	1,280,000	Sta. Yds.	0.005	6,400.00
3	Structural Excavation—Class "A"	25,164	5,487	30,651	Cu. Yds.	1.20	36,781.20
4	Structural Excavation—Class "B"	10	.....	10	Cu. Yds.	2.00	20.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	739,996	257,982	997,978	Lbs.	0.04	39,919.12
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	3,646	1,730	5,376	Cu. Yds.	15.50	83,328.00
9	Concrete Structures—Class "B" Concrete	856	.....	856	Cu. Yds.	14.50	12,412.00
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	12.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	70	.....	70	Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch	.....	.....	.....	Lin. Ft.	2.00	.....
22	Corrugated Metal Pipe Culvert—18 Inch	276	106	382	Lin. Ft.	3.00	1,146.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	.....	.....	.....	Lin. Ft.	1.20	.....
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	34	.....	34	Lin. Ft.	1.50	51.00
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	160	.....	160	Lin. Ft.	1.80	288.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,200	78	1,278	Lin. Ft.	4.40	5,623.20
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	180	.....	180	Lin. Ft.	1.00	180.00
30	Vitrified Pipe Sewers—8 Inch	.....	.....	.....	Lin. Ft.	1.20	.....
31	Manholes—Standard Tops	6	.....	6	Each	90.00	540.00
32	Manholes—Inlet Tops	2	.....	2	Each	100.00	200.00
33	Manholes—Grating Tops	.....	.....	.....	Each	90.00	.....
34	Storm Water Inlets—24 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	.....	.....	.....	Each	100.00	.....
36	Storm Water Inlets—"C"	.....	.....	.....	Each	80.00	.....
37	Lamp Holes—6 Inch	1	.....	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	.....	.....	.....	Each	36.00	.....
40	Hand Hole	.....	.....	.....	Each	30.00	.....
41	Underdrains—6 In. Perf. Corrug. Metal Pipe	1,430	96	1,526	Lin. Ft.	1.40	2,136.40
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	.....	53	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	.....	.....	.....	Cu. Yds.	5.00	.....
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	261	1	262	Cu. Yds.	3.00	786.00
48	Tunnel Construction—Type "A"	50	30	80	Lin. Ft.	325.00	26,000.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	19%	3%	22%	Lump Sum	340,000.00	74,800.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	210,000.00	.....
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	499,916.92
Deductions—25% of Work Done	.....
Deduction—$100,000	100,000.00
Deduction—10% of Work Done	.....
Total Due to Date	399,916.92
Previous Payments	272,163.46
Balance Due on This Estimate	127,753.46

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held December 6, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work
From November 1, 1934 to November 30, 1934

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Six
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	618,870	85,142	704,012	Cu. Yds.	$ 0.33	232,323.96
2	Overhaul	1,280,000	410,000	1,690,000	Sta. Yds.	0.005	8,450.00
3	Structural Excavation—Class "A"	30,651	397	31,048	Cu. Yds.	1.20	37,257.60
4	Structural Excavation—Class "B"	10	.....	10	Cu. Yds.	2.00	20.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	997,978	338,387	1,336,365	Lbs.	0.04	53,454.60
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	5,376	1,543	6,919	Cu. Yds.	15.50	107,244.50
9	Concrete Structures—Class "B" Concrete	856	.....	856	Cu. Yds.	14.50	12,412.00
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Pill Protectors	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	70	.....	70	Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch	.....	136	136	Lin. Ft.	2.00	272.00
22	Corrugated Metal Pipe Culvert—16 Inch	382	56	438	Lin. Ft.	3.00	1,314.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	.....	.....	.....	Lin. Ft.	1.20	.....
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	34	.....	34	Lin. Ft.	1.50	51.00
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	160	.....	160	Lin. Ft.	1.80	288.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,278	46	1,324	Lin. Ft.	4.40	5,825.60
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	180	20	200	Lin. Ft.	1.00	200.00
30	Vitrified Pipe Sewers—8 Inch	.....	30	30	Lin. Ft.	1.20	36.00
31	Manholes—Standard Tops	6	.....	6	Each	90.00	540.00
32	Manholes—Inlet Tops	2	.....	2	Each	100.00	200.00
33	Manholes—Grating Tops	.....	2	2	Each	90.00	180.00
34	Storm Water Inlets—24 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	.....	.....	.....	Each	100.00	.....
36	Storm Water Inlets—"C"	.....	3	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1	.....	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	.....	.....	.....	Each	36.00	.....
40	Hand Hole	.....	.....	.....	Each	30.00	.....
41	Underdrains—6 In. Perf. Corrug. Metal Pipe	1,526	.....	1,526	Lin. Ft.	1.40	2,136.40
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	53	.....	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	.....	.....	.....	Cu. Yds.	5.00	.....
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	262	4	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	80	49	129	Lin. Ft.	325.00	41,925.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	22%	6%	28%	Lump Sum	$40,000.00	95,200.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	210,000.00	.....
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS
Checked by A. S. GELSTON
Approved J. W. BARKLEY
Chief Asst. Engr.
Approved.....
Approved.....

Total Value of Work Done to Date	605,447.56
Deductions—25% of Work Done	.....
Deduction—$100,000	100,000.00
Deduction—10% of Work Done	.....
Total Due to Date	505,447.56
Previous Payments	399,916.92
Balance Due on This Estimate	105,530.64

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

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CARD 54

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held August 9, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From July 1, 193_ to July 31, 1934

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. 2
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	23,800	101,600	125,400	Cu. Yds.	$ 0.33	41,382
2	Overhaul	20,000	69,000	89,000	Sta. Yds.	0.005	445
3	Structural Excavation—Class "A"	7,300	4,000	11,300	Cu. Yds.	1.20	13,560
4	Structural Excavation—Class "B"	.....	10	10	Cu. Yds.	3.00	30
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	.....	107,400	107,400	Lbs.	0.04	4,296
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	.....	292	292	Cu. Yds.	15.50	4,526
9	Concrete Structures—Class "B" Concrete	.....	242	242	Cu. Yds.	14.50	3,509
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	.....	50	50	Lin. Ft.	1.30	65
21	Corrugated Metal Pipe Culvert—12 Inch	.....	.....	.....	Lin. Ft.	2.00	.....
22	Corrugated Metal Pipe Culvert—18 Inch	.....	.....	.....	Lin. Ft.	3.00	.....
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	.....	.....	.....	Lin. Ft.	1.20	.....
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	.....	.....	.....	Lin. Ft.	1.50	.....
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	.....	.....	.....	Lin. Ft.	1.80	.....
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.90	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	.....	.....	.....	Lin. Ft.	4.40	.....
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	.....	.....	.....	Lin. Ft.	6.50	.....
29	Vitrified Pipe Sewers—6 Inch	.....	.....	.....	Lin. Ft.	1.00	.....
30	Vitrified Pipe Sewers—8 Inch	.....	.....	.....	Lin. Ft.	1.20	.....
31	Manholes—Standard Tops	.....	.....	.....	Each	90.00	.....
32	Manholes—Inlet Tops	.....	.....	.....	Each	100.00	.....
33	Manholes—Grating Tops	.....	.....	.....	Each	80.00	.....
34	Storm Water Inlets—24 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	.....	.....	.....	Each	100.00	.....
36	Storm Water Inlets—"C"	.....	.....	.....	Each	80.00	.....
37	Lamp Holes—6 Inch	.....	.....	.....	Each	24.00	.....
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	.....	.....	.....	Each	36.00	.....
40	Hand Hole	.....	.....	.....	Each	30.00	.....
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	.....	140	140	Lin. Ft.	1.40	196
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	.....	.....	.....	Lin. Ft.	0.80	.....
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	.....	.....	.....	Cu. Yds.	5.00	.....
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	27	60	87	Cu. Yds.	3.00	361
48	Tunnel Construction—Type "A"	.....	.....	.....	Lin. Ft.	325.00	.....
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	1%	2%	3%	Lump Sum	340,000.00	10,200
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	210,000.00	.....
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	78,460
Deductions—25% of Work Done	19,615
Deduction—$100,000	.....
Deduction—10% of Work Done	.....
Total Due to Date	58,845
Previous Payments	15,146.25
Balance Due on This Estimate	43,698.75

This Estimate Approved WARLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held September 11, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work
From August 1, 1934 to August 31, 1934

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Three
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	125,427	128,997	254,424	Cu. Yds.	$ 0.33	83,959.92
2	Overhaul	89,000	97,000	186,000	Sta. Yds.	0.005	930.00
3	Structural Excavation—Class "A"	11,300	5,253	16,553	Cu. Yds.	1.20	19,863.60
4	Structural Excavation—Class "B"	10	.....	10	Cu. Yds.	2.00	20.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	107,400	299,481	406,881	Lbs.	0.04	16,275.24
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	292	1,611	1,903	Cu. Yds.	15.50	29,496.50
9	Concrete Structures—Class "B" Concrete	242	457	699	Cu. Yds.	14.50	10,135.50
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	50	20	70	Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch	.....	.....	.....	Lin. Ft.	2.00	.....
22	Corrugated Metal Pipe Culvert—18 Inch	.....	276	276	Lin. Ft.	3.00	828.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	.....	.....	.....	Lin. Ft.	1.20	.....
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	.....	.....	.....	Lin. Ft.	1.50	.....
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	.....	160	160	Lin. Ft.	1.80	288.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	.....	984	984	Lin. Ft.	4.40	4,329.60
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	.....	.....	.....	Lin. Ft.	8.50	.....
29	Vitrified Pipe Sewers—6 Inch	.....	.....	.....	Lin. Ft.	1.00	.....
30	Vitrified Pipe Sewers—8 Inch	.....	.....	.....	Lin. Ft.	1.20	.....
31	Manholes—Standard Tops	.....	.....	.....	Each	90.00	.....
32	Manholes—Inlet Tops	.....	.....	.....	Each	100.00	.....
33	Manholes—Grating Tops	.....	.....	.....	Each	90.00	.....
34	Storm Water Inlets—24 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	.....	.....	.....	Each	100.00	.....
36	Storm Water Inlets—"C"	.....	.....	.....	Each	80.00	.....
37	Lamp Holes—6 Inch	.....	.....	.....	Each	24.00	.....
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	.....	.....	.....	Each	36.00	.....
40	Hand Hole	.....	.....	.....	Each	30.00	.....
41	Underdrains—6 In. Perf. Corrug. Metal Pipe	140	1,040	1,180	Lin. Ft.	1.40	1,652.00
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	.....	.....	.....	Lin. Ft.	0.80	.....
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	.....	.....	.....	Cu. Yds.	5.00	.....
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	87	163	250	Cu. Yds.	3.00	750.00
48	Tunnel Construction—Type "A" 50% of 40 ft.	.....	20	20	Lin. Ft.	325.00	6,500.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
52	Ventilation Buildings—West and East Bldgs., Complete	.....	.....	.....	Lump Sum	340,000.00	.....
51	Ventilation Equipment—Furn. and Install. Complete	3%	7%	10%	Lump Sum	160,000.00	34,000.00
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	210,000.00	.....
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	209,119.36
Deductions—25% of Work Done	52,279.84
Deduction—$100,000	.....
Deduction—10% of Work Done	.....
Total Due to Date	156,839.52
Previous Payments	58,845.00
Balance Due on This Estimate	97,994.52

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held October 9, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Four
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

From September 1, 1934 to September 30, 1934

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	254,424	159,832	414,256	Cu. Yds.	$ 0.33	136,704.48
2	Overhaul	186,000	94,000	280,000	Sta. Yds.	0.005	1,400.00
3	Structural Excavation—Class "A"	16,553	8,611	25,164	Cu. Yds.	1.20	30,196.80
4	Structural Excavation—Class "B"	10	0	10	Cu. Yds.	2.00	20.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	406,881	333,115	739,996	Lbs.	0.04	29,599.84
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	1,903	1,743	3,646	Cu. Yds.	15.50	56,513.00
9	Concrete Structures—Class "B" Concrete	699	157	856	Cu. Yds.	14.50	12,412.00
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—6 Inch	70	.....	70	Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch	.....	.....	.....	Lin. Ft.	2.00	.....
22	Corrugated Metal Pipe Culvert—18 Inch	276	.....	276	Lin. Ft.	3.00	828.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	.....	.....	.....	Lin. Ft.	1.20	.....
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	.....	34	34	Lin. Ft.	1.50	51.00
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	160	.....	160	Lin. Ft.	1.80	288.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	984	216	1,200	Lin. Ft.	4.40	5,280.00
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	.....	579	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	.....	180	180	Lin. Ft.	1.00	180.00
30	Vitrified Pipe Sewers—8 Inch	.....	.....	.....	Lin. Ft.	1.20	.....
31	Manholes—Standard Tops	.....	6	6	Each	90.00	540.00
32	Manholes—Inlet Tops	.....	2	2	Each	100.00	200.00
33	Manholes—Grating Tops	.....	.....	.....	Each	90.00	.....
34	Storm Water Inlets—24 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	.....	.....	.....	Each	100.00	.....
36	Storm Water Inlets—"C"	.....	.....	.....	Each	80.00	.....
37	Lamp Holes—6 Inch	.....	1	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	.....	.....	.....	Each	36.00	.....
40	Hand Hole	.....	.....	.....	Each	30.00	.....
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,180	250	1,430	Lin. Ft.	1.40	2,002.00
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	.....	.....	.....	Lin. Ft.	0.80	.....
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	.....	.....	.....	Cu. Yds.	5.00	.....
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	250	11	261	Cu. Yds.	3.00	783.00
48	Tunnel Construction—Type "A"	20	30	50	Lin. Ft.	325.00	16,250.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	10%	9%	19%	Lump Sum	$40,000.00	64,600.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	210,000.00	.....
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Total Value of Work Done to Date	362,884.62
Deductions—25% of Work Done	90,721.16
Deduction—$100,000	.....
Deduction—10% of Work Done	.....
Total Due to Date	272,163.46
Previous Payments	156,839.52
Balance Due on This Estimate	115,323.94

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved .....

Approved .....

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

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DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held January 8, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work
From December 1, 1934 to December 31, 1934

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Seven
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	704,012	13,437	717,449	Cu. Yds.	$ 0.33	236,758.17
2	Overhaul	1,690,000	———	1,690,000	Sta. Yds.	0.005	8,450.00
3	Structural Excavation—Class "A"	31,048	1,595	32,643	Cu. Yds.	1.20	39,171.60
4	Structural Excavation—Class "B"	10	127	137	Cu. Yds.	2.00	274.00
5	Shoulders	———	———	———	Sq. Ft.	0.035	———
6	Reinforcing Steel	1,336,365	159,000	1,495,365	Lbs.	0.04	59,814.60
7	Structural Steel	———	———	———	Lbs.	0.05	———
8	Concrete Structures—Class "A" Concrete	6,919	1,379	8,298	Cu. Yds.	15.50	128,619.00
9	Concrete Structures—Class "B" Concrete	856	———	856	Cu. Yds.	14.50	12,412.00
10	Portland Cement Concrete Pavement—6 Inch	———	———	———	Sq. Ft.	0.24	———
11	Portland Cement Concrete Pavement—8 Inch	———	———	———	Sq. Ft.	0.18	———
12	Asphalt Concrete	———	———	———	Sq. Ft.	0.06	———
13	Penetration Oil Macadam Pavement	———	———	———	Sq. Ft.	0.14	———
14	Concrete Curbs—6 Inch	———	———	———	Lin. Ft.	0.52	———
15	Concrete Curbs—12 Inch	———	———	———	Lin. Ft.	0.80	———
16	Concrete Curbs—6 Inch with Guard	———	———	———	Lin. Ft.	1.00	———
17	Concrete Gutters	———	———	———	Sq. Ft.	0.25	———
18	Cement Sidewalks	———	———	———	Sq. Ft.	0.13	———
19	Fill Protectors	———	———	———	Each	19.00	———
20	Corrugated Metal Pipe Culvert—6 Inch	70	———	70	Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch	136	———	136	Lin. Ft.	2.00	272.00
22	Corrugated Metal Pipe Culvert—18 Inch	438	———	438	Lin. Ft.	3.00	1,314.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	———	———	———	Lin. Ft.	1.20	———
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	34	———	34	Lin. Ft.	1.50	51.00
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	160	235	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	———	———	———	Lin. Ft.	2.00	———
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,324	———	1,324	Lin. Ft.	4.40	5,825.60
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	———	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	200	———	200	Lin. Ft.	1.00	200.00
30	Vitrified Pipe Sewers—8 Inch	30	27	57	Lin. Ft.	1.20	68.40
31	Manholes—Standard Tops	6	———	6	Each	90.00	540.00
32	Manholes—Inlet Tops	2	———	2	Each	100.00	200.00
33	Manholes—Grating Tops	2	1	3	Each	90.00	270.00
34	Storm Water Inlets—24 Inch Openings	———	———	———	Each	75.00	———
35	Storm Water Inlets—"B"	———	———	———	Each	100.00	———
36	Storm Water Inlets—"C"	3	———	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1	———	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	———	———	———	Each	26.00	———
39	Lamp Holes—12 Inch	———	1	1	Each	36.00	36.00
40	Hand Hole	———	———	———	Each	30.00	———
41	Underdrains—6 In. Perf. Corrug. Metal Pipe	1,526	60	1,586	Lin. Ft.	1.40	2,220.40
42	Piping Cast Iron—6 Inch	———	———	———	Lin. Ft.	1.50	———
43	Guard Rail	53	———	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	———	———	———	Lin. Ft.	3.00	———
45	Riprap	———	126	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	———	———	———	Lbs.	0.13	———
47	Stone or Gravel for Foundations	266	———	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	129	45	174	Lin. Ft.	325.00	56,550.00
49	Tunnel Construction—Type "B"	———	———	———	Lin. Ft.	400.00	———
50	Cross Adits	———	———	———	Lin. Ft.	40.00	———
51	Ventilation Buildings—West and East Bldgs., Complete	28%	3%	31%	Lump Sum	340,000.00	105,400.00
52	Ventilation Equipment—Furn. and Install. Complete	———	———	———	Lump Sum	160,000.00	———
53	Mechanical Equipment—Furn. and Install. Complete	———	———	———	Lump Sum	60,000.00	———
54	Electrical Equipment—Furn. and Install. Complete	———	3½%	3½%	Lump Sum	210,000.00	7,350.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	———	———	———	Lump Sum	15,000.00	———

Estimate Made by C. E. RIGGS
Checked by A. S. GELSTON
Approved J. W. BARKLEY
Chief Asst. Engr.
Approved ———
Approved ———

Total Value of Work Done to Date	673,254.67
Deductions—25% of Work Done	———
Deduction—$100,000	100,000.00
Deduction—10% of Work Done	———
Total Due to Date	573,254.67
Previous Payments	505,447.56
Balance Due on This Estimate	67,807.11

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

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DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held February 6, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From January 1, 1935 to January 31, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Eight
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	717,449	15,670	733,119	Cu. Yds.	$ 0.33	$ 241,929.27
2	Overhaul	1,690,000	95,000	1,785,000	Sta. Yds.	0.005	8,925.00
3	Structural Excavation—Class "A"	32,643	112	32,755	Cu. Yds.	1.20	39,306.00
4	Structural Excavation—Class "B"	137	———	137	Cu. Yds.	2.00	274.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	1,495.365	28,550	1,523,915	Lbs.	0.04	60,956.60
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	8,298	206	8,504	Cu. Yds.	15.50	131,812.00
9	Concrete Structures—Class "B" Concrete	856	minus 51.2	804.8	Cu. Yds.	14.50	11,669.60
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.06	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	12.00	.....
20	Corrugated Metal Pipe Culvert—6 Inch	70	———	70	Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch	136	.....	136	Lin. Ft.	2.00	272.00
22	Corrugated Metal Pipe Culvert—18 Inch	438	———	438	Lin. Ft.	3.00	1,314.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	.....	.....	.....	Lin. Ft.	1.20	.....
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	34	213	247	Lin. Ft.	1.50	370.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,324	.....	1,324	Lin. Ft.	4.40	5,825.60
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	200	5	205	Lin. Ft.	1.00	205.00
30	Vitrified Pipe Sewers—8 Inch	57	.....	57	Lin. Ft.	1.20	68.40
31	Manholes—Standard Tops	6	.....	6	Each	90.00	540.00
32	Manholes—Inlet Tops	2	.....	2	Each	100.00	200.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—24 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	.....	.....	.....	Each	100.00	.....
36	Storm Water Inlets—"C"	3	.....	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1	.....	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	1	1	2	Each	36.00	72.00
40	Hand Hole	.....	.....	.....	Each	30.00	.....
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,586	40	1,626	Lin. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	53	———	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	126	.....	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	266	.....	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	174	74	248	Lin. Ft.	325.00	80,600.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	31%	2%	33%	Lump Sum	$40,000.00	112,200.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	3½%	———	3½%	Lump Sum	210,000.00	7,350.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	713,894.27
Deductions—25% of Work Done	.....
Deduction—$100,000	100,000.00
Deduction—10% of Work Done	.....
Total Due to Date	613,894.27
Previous Payments	573,254.67
Balance Due on This Estimate	40,639.60

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held March 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From February 1, 1935 to February 28, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Nine
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	733,119	.....	733,119	Cu. Yds.	$ 0.33	241,929.27
2	Overhaul	1,785,000	445,828	2,230,828	Sta. Yds.	0.005	11,154.14
3	Structural Excavation—Class "A"	32,755	79	32,834	Cu. Yds.	1.20	39,400.80
4	Structural Excavation—Class "B"	137	.....	137	Cu. Yds.	2.00	274.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	1,523,915	.....	1,523,915	Lbs.	0.04	60,956.60
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	8,504	.....	8,504	Cu. Yds.	15.50	131,812.00
9	Concrete Structures—Class "B" Concrete	804.8	.....	804.8	Cu. Yds.	14.50	11,669.60
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	70	28	98	Lin. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	136	.....	136	Lin. Ft.	2.00	272.00
22	Corrugated Metal Pipe Culvert—18 Inch	438	.....	438	Lin. Ft.	3.00	1,314.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	.....	48	48	Lin. Ft.	1.20	57.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	247	306	553	Lin. Ft.	1.50	829.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,324	2	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	205	10	215	Lin. Ft.	1.00	215.00
30	Vitrified Pipe Sewers—8 Inch	57	.....	57	Lin. Ft.	1.20	68.40
31	Manholes—Standard Tops	6	1	7	Each	90.00	630.00
32	Manholes—Inlet Tops	2	.....	2	Each	100.00	200.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—24 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	.....	2	2	Each	100.00	200.00
36	Storm Water Inlets—"C"	3	.....	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1	.....	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	2	.....	2	Each	36.00	72.00
40	Hand Hole	.....	1	1	Each	30.00	30.00
41	Underdrain 8 In. Perf. Corrug. Metal Pipe	1,626	.....	1,626	Lin. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	53	.....	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	126	.....	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	266	.....	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	248	106	354	Lin. Ft.	325.00	115,050.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	33%	2%	35%	Lump Sum	$40,000.00	119,000.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	3½%	.....	3½%	Lump Sum	$10,000.00	7,350.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	758,360.01
Deductions—85% of Work Done	.....
Deduction—$100,000	100,000.00
Deduction—10% of Work Done	.....
Total Due to Date	658,360.01
Previous Payments	613,894.27
Balance Due on This Estimate	44,465.74

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held April 4th, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Ten
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From March 1, 1935 to March 31, 1935

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	733,119	301	733,420	Cu. Yds.	$ 0.33	242,028.60
2	Overhaul	2,230,828	46,600	2,277,428	Sta. Yds.	0.005	11,387.14
3	Structural Excavation—Class "A"	32,834	785	33,619	Cu. Yds.	1.20	40,342.80
4	Structural Excavation—Class "B"	137	.....	137	Cu. Yds.	2.00	274.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	1,523,915	64,000	1,587,915	Lbs.	0.04	63,516.60
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	8,504	326	8,830	Cu. Yds.	15.50	136,865.00
9	Concrete Structures—Class "B" Concrete	804.8	.....	804.8	Cu. Yds.	14.50	11,669.60
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.06	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	98	.....	98	Each	19.00	127.40
20	Corrugated Metal Pipe Culvert—8 Inch	136	.....	136	Lin. Ft.	1.30	272.00
21	Corrugated Metal Pipe Culvert—12 Inch	438	.....	438	Lin. Ft.	2.00	1,314.00
22	Corrugated Metal Pipe Culvert—18 Inch	48	.....	48	Lin. Ft.	3.00	57.60
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	553	.....	553	Lin. Ft.	1.20	829.50
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	395	.....	395	Lin. Ft.	1.50	711.00
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	.....	.....	.....	Lin. Ft.	1.80	.....
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	1,326	.....	1,326	Lin. Ft.	2.00	5,834.40
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	579	.....	579	Lin. Ft.	4.40	4,921.50
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	215	.....	215	Lin. Ft.	3.50	215.00
29	Vitrified Pipe Sewers—6 Inch	57	.....	57	Lin. Ft.	1.00	68.40
30	Vitrified Pipe Sewers—8 Inch	7	.....	7	Lin. Ft.	1.20	630.00
31	Manholes—Standard Tops	2	.....	2	Each	90.00	200.00
32	Manholes—Inlet Tops	3	.....	3	Each	100.00	270.00
33	Manholes—Grating Tops	.....	.....	.....	Each	90.00	.....
34	Storm Water Inlets—24 Inch Openings	2	.....	2	Each	75.00	200.00
35	Storm Water Inlets—"B"	3	.....	3	Each	100.00	240.00
36	Storm Water Inlets—"C"	1	.....	1	Each	80.00	24.00
37	Lamp Holes—6 Inch	.....	.....	.....	Each	24.00	.....
38	Lamp Holes—8 Inch	2	.....	2	Each	26.00	72.00
39	Lamp Holes—12 Inch	1	.....	1	Each	36.00	30.00
40	Hand Hole	1,626	.....	1,626	Each	30.00	2,276.40
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	.....	.....	.....	Lin. Ft.	1.40	.....
42	Piping Cast Iron—6 Inch	53	.....	53	Lin. Ft.	1.50	42.40
43	Guard Rail	.....	.....	.....	Lin. Ft.	0.80	.....
44	Pipe Hand Rail	126	.....	126	Lin. Ft.	3.00	630.00
45	Riprap	.....	.....	.....	Cu. Yds.	5.00	.....
46	Metal Cribbing	266	.....	266	Lbs.	0.13	798.00
47	Stone or Gravel for Foundations	354	118	472	Cu. Yds.	3.00	153,400.00
48	Tunnel Construction—Type "A"	.....	.....	.....	Lin. Ft.	325.00	.....
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	35%	3%	38%	Lump Sum	$40,000.00	129,200.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	3½%	1½%	5%	Lump Sum	210,000.00	10,500.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Total Value of Work Done to Date	818,947.34
Deductions—85% of Work Done	
Deduction—$100,000	100,000.00
Deduction—10% of Work Done	
Total Due to Date	718,947.34
Previous Payments	658,360.01
Balance Due on This Estimate	60,587.33

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved .....

Approved .....

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held May 9, 1935.

HARRY M. STOW, Secretary
By J. V. EATON, Assistant Secretary

Estimate of Work

From April 1, 1935 to April 30, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Eleven
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	733,420	.....	733,420	Cu. Yds.	$ 0.33	242,028.60
2	Overhaul	2,277,428	49,280	2,326,708	Sta. Yds.	0.005	11,633.54
3	Structural Excavation—Class "A"	33,619	332	33,951	Cu. Yds.	1.20	40,741.20
4	Structural Excavation—Class "B"	137	126	263	Cu. Yds.	2.00	526.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	1,587,915	73,450	1,661,365	Lbs.	0.04	66,454.60
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	8,830	306	9,136	Cu. Yds.	15.50	141,608.00
9	Concrete Structures—Class "B" Concrete	804.8	170.2	975.0	Cu. Yds.	14.50	14,137.50
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	12.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	98	.....	98	Lin. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	136	.....	136	Lin. Ft.	2.00	272.00
22	Corrugated Metal Pipe Culvert—18 Inch	438	.....	438	Lin. Ft.	3.00	1,314.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	48	.....	48	Lin. Ft.	1.20	57.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	553	.....	553	Lin. Ft.	1.50	829.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	.....	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	215	.....	215	Lin. Ft.	1.00	215.00
30	Vitrified Pipe Sewers—8 Inch	57	.....	57	Lin. Ft.	1.20	68.40
31	Manholes—Standard Tops	7	.....	7	Each	90.00	630.00
32	Manholes—Inlet Tops	2	.....	2	Each	100.00	200.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—24 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	2	.....	2	Each	100.00	200.00
36	Storm Water Inlets—"C"	3	.....	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1	.....	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	2	.....	2	Each	36.00	72.00
40	Hand Hole	1	.....	1	Each	30.00	30.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,626	.....	1,626	Lin. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	53	.....	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	126	.....	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	.....	.....	.....	Lbs.	0.12	.....
47	Stone or Gravel for Foundations	266	.....	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	472	124	596	Lin. Ft.	325.00	193,700.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	38%	2%	40%	Lump Sum	$40,000.00	136,000.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	5%	0.8%	5.8%	Lump Sum	$10,000.00	12,180.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	878,773.04
Deductions—25% of Work Done	.....
Deduction—$100,000	100,000.00
Deduction—10% of Work Done	.....
Total Due to Date	778,773.04
Previous Payments	718,947.34
Balance Due on This Estimate	59,825.70

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held June 10, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From May 1, 1935 to May 31, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twelve
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	733,420	1,090	734,510	Cu. Yds.	$ 0.33	242,388.30
2	Overhaul	2,326,708	45,840	2,372,548	Sta. Yds.	0.005	11,862.74
3	Structural Excavation—Class "A"	33,951	1,619	35,570	Cu. Yds.	1.20	42,684.00
4	Structural Excavation—Class "B"	263	5	268	Cu. Yds.	2.00	536.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	1,661,365	75,000	1,736,365	Lbs.	0.04	69,454.60
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	9,136	315	9,451	Cu. Yds.	15.50	146,490.50
9	Concrete Structures—Class "B" Concrete	975	66	1,041	Cu. Yds.	14.50	15,094.50
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.06	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	98	.....	98	Lin. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	136	.....	136	Lin. Ft.	2.00	272.00
22	Corrugated Metal Pipe Culvert—18 Inch	438	.....	438	Lin. Ft.	3.00	1,314.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	48	.....	48	Lin. Ft.	1.20	57.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	553	.....	553	Lin. Ft.	1.50	829.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	.....	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	215	.....	215	Lin. Ft.	1.00	215.00
30	Vitrified Pipe Sewers—8 Inch	57	.....	57	Lin. Ft.	1.20	68.40
31	Manholes—Standard Tops	7	.....	7	Each	90.00	630.00
32	Manholes—Inlet Tops	2	.....	2	Each	100.00	200.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—24 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	2	.....	2	Each	100.00	200.00
36	Storm Water Inlets—"C"	3	.....	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1	.....	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	2	.....	2	Each	36.00	72.00
40	Hand Hole	1	.....	1	Each	30.00	30.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,626	.....	1,626	Lin. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	53	.....	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	126	.....	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	266	.....	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	596	280	876	Lin. Ft.	325.00	284,700.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	40%	4.3%	44.3%	Lump Sum	340,000.00	150,620.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	3.2%	3.2%	Lump Sum	160,000.00	5,120.00
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	5.8%	1.6%	7.4%	Lump Sum	210,000.00	15,540.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	1,004,254.24
Deductions—25% of Work Done	.....
Deduction—$100,000	.....
Deduction—10% of Work Done	100,425.42
Total Due to Date	903,828.82
Previous Payments	778,773.04
Balance Due on This Estimate	125,055.78

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held July 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From June 1, 1935 to June 30, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Thirteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	734,510	25,500	760,010	Cu. Yds.	$ 0.33	250,803.30
2	Overhaul	2,372,548	103,700	2,476,248	Sta. Yds.	0.005	12,381.24
3	Structural Excavation—Class "A"	35,570	549	36,119	Cu. Yds.	1.20	43,342.80
4	Structural Excavation—Class "B"	268	.....	268	Cu. Yds.	2.00	536.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	1,736,365	66,000	1,802,365	Lbs.	0.04	72,094.60
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	9,451	296	9,747	Cu. Yds.	15.50	151,078.50
9	Concrete Structures—Class "B" Concrete	1,041	187	1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	.....	.....	Lin. Ft.	0.52	.....
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	12.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	98	.....	98	Lin. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	136	108	244	Lin. Ft.	2.00	488.00
22	Corrugated Metal Pipe Culvert—18 Inch	438	152	590	Lin. Ft.	3.00	1,770.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	48	.....	48	Lin. Ft.	1.20	57.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	553	.....	553	Lin. Ft.	1.50	829.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	.....	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	215	.....	215	Lin. Ft.	1.00	215.00
30	Vitrified Pipe Sewers—8 Inch	57	20	77	Lin. Ft.	1.20	92.40
31	Manholes—Standard Tops	7	1	8	Each	90.00	720.00
32	Manholes—Inlet Tops	2	.....	2	Each	100.00	200.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	.....	.....	.....	Each	75.00	.....
35	Storm Water Inlets—"B"	2	.....	2	Each	100.00	200.00
36	Storm Water Inlets—"C"	3	.....	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1	.....	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	.....	.....	.....	Each	26.00	.....
39	Lamp Holes—12 Inch	2	.....	2	Each	36.00	72.00
40	Hand Hole	1	.....	1	Each	30.00	30.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,626	.....	1,626	Lin. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	53	.....	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	126	.....	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	266	.....	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	876	190	1,066	Lin. Ft.	325.00	346,450.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	.....	.....	.....	Lin. Ft.	40.00	.....
51	Ventilation Buildings—West and East Bldgs., Complete	44.3%	2.1%	46.4%	Lump Sum	$40,000.00	157,760.00
52	Ventilation Equipment—Furn. and Install. Complete	3.2%	3.9%	7.1%	Lump Sum	160,000.00	11,360.00
53	Mechanical Equipment—Furn. and Install. Complete	.....	6.7%	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	7.4%	1.2%	8.6%	Lump Sum	210,000.00	18,060.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	1,106,242.04
Deductions—25% of Work Done	.....
Deduction—$100,000	.....
Deduction—10% of Work Done	110,624.20
Total Due to Date	995,617.84
Previous Payments	903,828.82
Balance Due on This Estimate	91,789.02

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held August 8, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From July 1, 1935 to July 31, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Fourteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	760,010	20,605	780,615	Cu. Yds.	$ 0.33	257,602.95
2	Overhaul	2,476,248	108,390	2,584,638	Sta. Yds.	0.005	12,923.19
3	Structural Excavation—Class "A"	36,119	49	36,168	Cu. Yds.	1.20	43,401.60
4	Structural Excavation—Class "B"	268	———	268	Cu. Yds.	2.00	536.00
5	Shoulders	———	———	———	Sq. Ft.	0.035	———
6	Reinforcing Steel	1,802,365	43,412	1,845,777	Lbs.	0.04	73,831.08
7	Structural Steel	———	———	———	Lbs.	0.05	———
8	Concrete Structures—Class "A" Concrete	9,747	106	9,853	Cu. Yds.	15.50	152,721.50
9	Concrete Structures—Class "B" Concrete	1,228	———	1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch	———	———	———	Sq. Ft.	0.24	———
11	Portland Cement Concrete Pavement—6 Inch	———	———	———	Sq. Ft.	0.18	———
12	Asphalt Concrete	———	———	———	Sq. Ft.	0.08	———
13	Penetration Oil Macadam Pavement	———	———	———	Sq. Ft.	0.14	———
14	Concrete Curbs—8 Inch	———	———	———	Lin. Ft.	0.52	———
15	Concrete Curbs—12 Inch	———	———	———	Lin. Ft.	0.80	———
16	Concrete Curbs—6 Inch with Guard	———	———	———	Lin. Ft.	1.00	———
17	Concrete Gutters	———	———	———	Sq. Ft.	0.25	———
18	Cement Sidewalks	———	———	———	Sq. Ft.	0.13	———
19	Fill Protectors	———	———	———	Each	19.00	———
20	Corrugated Metal Pipe Culvert—8 Inch	98	———	98	Lin. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	244	———	244	Lin. Ft.	2.00	488.00
22	Corrugated Metal Pipe Culvert—15 Inch	590	———	590	Lin. Ft.	3.00	1,770.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	48	———	48	Lin. Ft.	1.20	57.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	553	———	553	Lin. Ft.	1.50	829.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	———	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	———	———	———	Lin. Ft.	2.00	———
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	———	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	———	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	215	———	215	Lin. Ft.	1.00	215.00
30	Vitrified Pipe Sewers—8 Inch	77	138	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	8	2	10	Each	90.00	900.00
32	Manholes—Inlet Tops	2	1	3	Each	100.00	300.00
33	Manholes—Grating Tops	3	———	3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	———	———	———	Each	75.00	———
35	Storm Water Inlets—"B"	2	———	2	Each	100.00	200.00
36	Storm Water Inlets—"C"	3	———	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1	———	1	Each	24.00	24.00
38	Lamp Holes—8 Inch	———	1	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	2	———	2	Each	36.00	72.00
40	Hand Hole	1	———	1	Each	30.00	30.00
41	Underdrains—6 In. Perf. Corrug. Metal Pipe	1,626	———	1,626	Lin. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch	———	———	———	Lin. Ft.	1.50	———
43	Guard Rail	53	———	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	———	———	———	Lin. Ft.	3.00	———
45	Riprap	126	———	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	———	———	———	Lbs.	0.13	———
47	Stone or Gravel for Foundations	266	———	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	1,066	293	1,359	Lin. Ft.	325.00	441,675.00
49	Tunnel Construction—Type "B"	———	———	———	Lin. Ft.	400.00	———
50	Cross Adits	———	21	21	Lin. Ft.	40.00	840.00
51	Ventilation Buildings—West and East Bldgs., Complete	46.4%	7.6%	54%	Lump Sum	$40,000.00	183,600.00
52	Ventilation Equipment—Furn. and Install. Complete	7.1%	2.2%	9.3%	Lump Sum	160,000.00	14,880.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	———	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	8.6%	0.7%	9.3%	Lump Sum	210,000.00	19,530.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	———	———	———	Lump Sum	15,000.00	———

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved ———

Approved ———

Total Value of Work Done to Date	1,244,388.52
Deductions—25% of Work Done	———
Deduction—$100,000	———
Deduction—10% of Work Done	124,438.85
Total Due to Date	1,119,949.67
Previous Payments	995,617.84
Balance Due on This Estimate	124,331.83

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held September 10, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From August 1, 1935 to August 31, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Fifteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	780,615	.....	780,615	Cu. Yds.	$ 0.33	257,602.95
2	Overhaul	2,584,638	.....	2,584,638	Sta. Yds.	0.005	12,923.19
3	Structural Excavation—Class "A"	38,168	109	38,277	Cu. Yds.	1.20	45,932.40
4	Structural Excavation—Class "B"	268	.....	268	Cu. Yds.	2.00	536.00
5	Shoulders	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	1,845,777	247,376	2,093,153	Lbs.	0.04	83,726.12
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	9,853	715	10,568	Cu. Yds.	15.50	163,804.00
9	Concrete Structures—Class "B" Concrete	1,228	.....	1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	24,670	24,670	Sq. Ft.	0.18	4,440.60
12	Asphalt Concrete	.....	.....	.....	Sq. Ft.	0.06	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curbs—6 Inch	.....	2,240	2,240	Lin. Ft.	0.52	1,164.80
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	.....	40	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	.....	2,280	2,280	Sq. Ft.	0.25	570.00
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	98	.....	98	Lin. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	244	.....	244	Lin. Ft.	2.00	488.00
22	Corrugated Metal Pipe Culvert—18 Inch	590	.....	590	Lin. Ft.	3.00	1,770.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	48	.....	48	Lin. Ft.	1.20	57.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	553	200	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	.....	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	215	17	232	Lin. Ft.	1.00	232.00
30	Vitrified Pipe Sewers—8 Inch	215	.....	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	.....	10	Each	90.00	900.00
32	Manholes—Inlet Tops	3	1	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—24 Inch Openings	.....	1	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	2	.....	2	Each	100.00	200.00
36	Storm Water Inlets—"C"	3	.....	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1	1	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	.....	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	2	1	3	Each	36.00	108.00
40	Hand Hole	1	.....	1	Each	30.00	30.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,626	402	2,028	Lin. Ft.	1.40	2,839.20
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	53	.....	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	.....	.....	.....	Lin. Ft.	3.00	.....
45	Riprap	126	.....	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	266	.....	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	1,359	211	1,570	Lin. Ft.	325.00	510,250.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	21	38	59	Lin. Ft.	40.00	2,360.00
51	Ventilation Buildings—West and East Bldgs., Complete	54%	7.3%	61.3%	Lump Sum	$40,000.00	208,420.00
52	Ventilation Equipment—Furn. and Install. Complete	9.3%	1.2%	10.5%	Lump Sum	160,000.00	16,800.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	.....	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	9.3%	1.1%	10.4%	Lump Sum	210,000.00	21,840.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	1,374,372.06
Deductions—25% of Work Done	.....
Deduction—$100,000	.....
Deduction—10% of Work Done	137,437.21
Total Due to Date	1,236,934.85
Previous Payments	1,119,949.67
Balance Due on This Estimate	116,985.18

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

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DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held October 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From September 1, 1935 to September 30, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Sixteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	780,615	3,600	784,215	Cu. Yds.	$ 0.33	258,790.95
2	Overhaul	2,584,638	———	2,584,638	Sta. Yds.	0.005	12,923.19
3	Structural Excavation—Class "A" #38,277-2,000	36,277	61	36,338	Cu. Yds.	1.20	43,605.60
4	Structural Excavation—Class "B"	268	———	268	Cu. Yds.	2.00	536.00
5	Shoulders	———	———	———	Sq. Ft.	0.035	———
6	Reinforcing Steel	2,093,153	128,369	2,221,522	Lbs.	0.04	88,860.88
7	Structural Steel	———	———	———	Lbs.	0.05	———
8	Concrete Structures—Class "A" Concrete	10,568	233	10,801	Cu. Yds.	15.50	167,415.50
9	Concrete Structures—Class "B" Concrete	1,228	———	1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch	———	———	———	Sq. Ft.	0.24	———
11	Portland Cement Concrete Pavement—6 Inch	24,670	6,431	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	———	40,000	40,000	Sq. Ft.	0.08	3,290.00
13	Penetration Oil Macadam Pavement	———	———	———	Sq. Ft.	0.14	———
14	Concrete Curbs—6 Inch	2,240	1,012	3,252	Lin. Ft.	0.52	1,691.04
15	Concrete Curbs—12 Inch	———	———	———	Lin. Ft.	0.80	———
16	Concrete Curbs—6 Inch with Guard	40	———	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	2,280	1,552	3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	———	———	———	Sq. Ft.	0.13	———
19	Fill Protectors	———	———	———	Each	19.00	———
20	Corrugated Metal Pipe Culvert—8 Inch	98	———	98	Lin. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	244	94	338	Lin. Ft.	2.00	676.00
22	Corrugated Metal Pipe Culvert—18 Inch	590	———	590	Lin. Ft.	3.00	1,770.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	48	50	98	Lin. Ft.	1.20	117.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	———	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	———	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	———	———	———	Lin. Ft.	2.00	———
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	———	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	———	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	232	———	232	Lin. Ft.	1.00	232.00
30	Vitrified Pipe Sewers—8 Inch	215	———	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	———	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	———	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	———	3	Each	90.00	270.00
34	Storm Water Inlets—24 Inch Openings	1	———	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	2	2	4	Each	100.00	400.00
36	Storm Water Inlets—"C"	3	———	3	Each	80.00	240.00
37	Lamp Holes—6 Inch	2	———	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	———	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	———	3	Each	36.00	108.00
40	Hand Hole	1	———	1	Each	30.00	30.00
41	Underdrains—6 In. Perf. Corrug. Metal Pipe	2,028	———	2,028	Lin. Ft.	1.40	2,839.20
42	Piping Cast Iron—6 Inch	———	———	———	Lin. Ft.	1.50	———
43	Guard Rail	53	———	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	———	———	———	Lin. Ft.	3.00	———
45	Riprap	126	———	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	———	———	———	Lbs.	0.13	———
47	Stone or Gravel for Foundations	266	———	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	1,570	72	1,642	Lin. Ft.	325.00	533,650.00
49	Tunnel Construction—Type "B"	———	———	———	Lin. Ft.	400.00	———
50	Cross Adits	59	———	59	Lin. Ft.	40.00	2,360.00
51	Ventilation Buildings—West and East Bldgs., Complete	61.3%	3.4%	64.7%	Lump Sum	340,000.00	219,980.00
52	Ventilation Equipment—Furn. and Install. Complete	10.5%	0.5%	11.0%	Lump Sum	160,000.00	17,600.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	———	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	10.4%	2.0%	12.4%	Lump Sum	210,000.00	26,040.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	———	———	———	Lump Sum	15,000.00	———

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	1,427,659.34
Deductions—85% of Work Done	———
Deduction—$100,000	———
Deduction—10% of Work Done	142,765.93
Total Due to Date	1,284,893.41
Previous Payments	1,236,934.85
Balance Due on This Estimate	47,958.56

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

#To correct Estimate No. Fifteen

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held November 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From Oct. 1, 1935 to Oct. 31, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Seventeen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	784,215	16,046	800,261	Cu. Yds.	$ 0.33	264,086.13
2	Overhaul	2,584,638	52,272	2,636,910	Sta. Yds.	0.005	13,184.55
3	Structural Excavation—Class "A"	36,338	128	36,466	Cu. Yds.	1.20	43,759.20
4	Structural Excavation—Class "B"	268	———	268	Cu. Yds.	2.00	536.00
5	Shoulders	———	———	———	Sq. Ft.	0.035	———
6	Reinforcing Steel	2,221,522	300,000	2,521,522	Lbs.	0.04	100,860.88
7	Structural Steel	———	———	———	Lbs.	0.05	———
8	Concrete Structures—Class "A" Concrete	10,801	149	10,950	Cu. Yds.	15.50	169,725.00
9	Concrete Structures—Class "B" Concrete	1,228	———	1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch	———	———	———	Sq. Ft.	0.24	———
11	Portland Cement Concrete Pavement—6 Inch	31,101	———	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	40,000	———	40,000	Sq. Ft.	0.08	3,200.00
13	Penetration Oil Macadam Pavement	———	80,000	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curbs—6 Inch	3,252	———	3,252	Lin. Ft.	0.52	1,691.04
15	Concrete Curbs—12 Inch	———	———	———	Lin. Ft.	0.80	———
16	Concrete Curbs—6 Inch with Guard	40	———	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,832	———	3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	———	———	———	Sq. Ft.	0.13	———
19	Fill Protectors	———	1	1	Each	19.00	19.00
20	Corrugated Metal Pipe Culvert—8 Inch	98	72	170	Lin. Ft.	1.30	221.00
21	Corrugated Metal Pipe Culvert—12 Inch	338	120	458	Lin. Ft.	2.00	916.00
22	Corrugated Metal Pipe Culvert—18 Inch	590	———	590	Lin. Ft.	3.00	1,770.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	98	56	154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	———	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	———	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	———	———	———	Lin. Ft.	2.00	———
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	———	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	———	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	232	———	232	Lin. Ft.	1.00	232.00
30	Vitrified Pipe Sewers—8 Inch	215	———	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	———	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	———	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	———	3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1	———	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4	———	4	Each	100.00	400.00
36	Storm Water Inlets—"C"	3	1	4	Each	80.00	320.00
37	Lamp Holes—6 Inch	2	———	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	———	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	———	3	Each	36.00	108.00
40	Hand Hole	1	1	2	Each	30.00	60.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,028	———	2,028	Lin. Ft.	1.40	2,839.20
42	Piping Cast Iron—6 Inch	———	———	———	Lin. Ft.	1.50	———
43	Guard Rail	53	———	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	———	———	———	Lin. Ft.	3.00	———
45	Riprap	126	———	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	———	———	———	Lbs.	0.13	———
47	Stone or Gravel for Foundations	266	———	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	1,642	280	1,922	Lin. Ft.	325.00	624,650.00
49	Tunnel Construction—Type "B"	———	———	———	Lin. Ft.	400.00	———
50	Cross Adits	59	———	59	Lin. Ft.	40.00	2,360.00
51	Ventilation Buildings—West and East Bldgs., Complete	64.7%	13.4%	78.1%	Lump Sum	340,000.00	265,540.00
52	Ventilation Equipment—Furn. and Install. Complete	11%	0.2%	11.2%	Lump Sum	160,000.00	17,920.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	———	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	12.4%	3.6%	16%	Lump Sum	210,000.00	33,600.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	———	———	———	Lump Sum	15,000.00	———

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	1,603,848.78
Deductions—25% of Work Done	———
Deduction—$100,000	———
Deduction—10% of Work Done	160,384.88
Total Due to Date	1,443,463.90
Previous Payments	1,284,893.41
Balance Due on This Estimate	158,570.49

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held December 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Eighteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

From November 1, 1935 to November 30, 1935

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	800,261	———	800,261	Cu. Yds.	$ 0.33	264,086.13
2	Overhaul	2,636,910	———	2,636,910	Sta. Yds.	0.005	13,184.55
3	Structural Excavation—Class "A"	36,466	285	36,751	Cu. Yds.	1.20	44,101.20
4	Structural Excavation—Class "B"	268	———	268	Cu. Yds.	2.00	536.00
5	Shoulders	———	———	———	Sq. Ft.	0.035	———
6	Reinforcing Steel	2,521,522	214,628	2,736,150	Lbs.	0.04	109,446.00
7	Structural Steel	———	———	———	Lbs.	0.05	———
8	Concrete Structures—Class "A" Concrete	10,950	252	11,202	Cu. Yds.	15.50	173,631.00
9	Concrete Structures—Class "B" Concrete	1,228	———	1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch	———	———	———	Sq. Ft.	0.24	———
11	Portland Cement Concrete Pavement—6 Inch	31,101	———	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	40,000	2,609	42,609	Sq. Ft.	0.08	3,408.72
13	Penetration Oil Macadam Pavement	80,000	———	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curbs—6 Inch	3,252	———	3,252	Lin. Ft.	0.52	1,691.04
15	Concrete Curbs—12 Inch	———	———	———	Lin. Ft.	0.80	———
16	Concrete Curbs—6 Inch with Guard	40	———	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,832	———	3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	———	7,000	7,000	Sq. Ft.	0.13	910.00
19	Fill Protectors	1	1	2	Each	19.00	38.00
20	Corrugated Metal Pipe Culvert—8 Inch	170	220	390	Lin. Ft.	1.30	507.00
21	Corrugated Metal Pipe Culvert—12 Inch	458	10	468	Lin. Ft.	2.00	936.00
22	Corrugated Metal Pipe Culvert—18 Inch	590	456	1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154	———	154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	———	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	———	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	———	———	———	Lin. Ft.	2.00	———
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	———	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	———	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	232	———	232	Lin. Ft.	1.00	232.00
30	Vitrified Pipe Sewers—8 Inch	215	———	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	———	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	———	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	———	3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1	———	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4	———	4	Each	100.00	400.00
36	Storm Water Inlets—"C"	4	1	5	Each	80.00	400.00
37	Lamp Holes—6 Inch	2	———	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	———	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	———	3	Each	36.00	108.00
40	Hand Hole	2	———	2	Each	30.00	60.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,028	170	2,198	Lin. Ft.	1.40	3,077.20
42	Piping Cast Iron—6 Inch	———	———	———	Lin. Ft.	1.50	———
43	Guard Rail	53	———	53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	———	313	313	Lin. Ft.	3.00	939.00
45	Riprap	126	———	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	———	———	———	Lbs.	0.13	———
47	Stone or Gravel for Foundations	266	———	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	1,922	231	2,153	Lin. Ft.	325.00	699,725.00
49	Tunnel Construction—Type "B"	———	———	———	Lin. Ft.	400.00	———
50	Cross Adits	59	38	97	Lin. Ft.	40.00	3,880.00
51	Ventilation Buildings—West and East Bldgs., Complete	78.1%	3.9%	82%	Lump Sum	340,000.00	278,800.00
52	Ventilation Equipment—Furn. and Install. Complete	11.2%	0.4%	11.6%	Lump Sum	160,000.00	18,560.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	———	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	16%	0.2%	16.2%	Lump Sum	210,000.00	34,020.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	———	———	———	Lump Sum	15,000.00	———

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	1,711,665.62
Deductions—95% of Work Done	———
Deduction—$100,000	———
Deduction—10% of Work Done	171,166.56
Total Due to Date	1,540,499.06
Previous Payments	1,443,463.90
Balance Due on This Estimate	97,035.16

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held January 9, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From December 1, 1935 to December 31, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Nineteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	800,261	4,814	805,075	Cu. Yds.	$ 0.33	265,674.75
2	Overhaul	2,636,910	500,000	3,136,910	Sta. Yds.	0.005	15,684.56
3	Structural Excavation—Class "A"	36,751	108	36,859	Cu. Yds.	1.20	44,230.80
4	Structural Excavation—Class "B"	268	.....	268	Cu. Yds.	2.00	536.00
5	Shoulders	.....	5,400	5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	2,736,150	151,167	2,887,317	Lbs.	0.04	115,492.68
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A" Concrete	11,202	138	11,340	Cu. Yds.	15.50	175,770.00
9	Concrete Structures—Class "B" Concrete	1,228	.....	1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	31,101	.....	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	42,609	.....	42,609	Sq. Ft.	0.08	3,406.72
13	Penetration Oil Macadam Pavement	80,000	.....	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curbs—6 Inch	3,252	.....	3,252	Lin. Ft.	0.52	1,691.04
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	40	.....	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,832	.....	3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	7,000	2,000	9,000	Sq. Ft.	0.13	1,170.00
19	Fill Protectors	2	2	4	Each	19.00	76.00
20	Corrugated Metal Pipe Culvert—8 Inch	390	206	596	Lin. Ft.	1.30	774.80
21	Corrugated Metal Pipe Culvert—12 Inch	468	.....	468	Lin. Ft.	2.00	936.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046	.....	1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154	.....	154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	.....	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	.....	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	232	.....	232	Lin. Ft.	1.00	232.00
30	Vitrified Pipe Sewers—8 Inch	215	.....	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	.....	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	.....	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1	.....	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4	.....	4	Each	100.00	400.00
36	Storm Water Inlets—"C"	5	2	7	Each	80.00	560.00
37	Lamp Holes—6 Inch	2	.....	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	.....	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	.....	3	Each	36.00	108.00
40	Hand Hole	2	.....	2	Each	30.00	60.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,198	.....	2,198	Lin. Ft.	1.40	3,077.20
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	53	600	653	Lin. Ft.	0.80	522.40
44	Pipe Hand Rail	313	.....	313	Lin. Ft.	3.00	939.00
45	Riprap	126	.....	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	266	.....	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	2,153	157	2,310	Lin. Ft.	325.00	750,750.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	97	.....	97	Lin. Ft.	40.00	3,880.00
51	Ventilation Buildings—West and East Bldgs., Complete	82%	1.9%	83.9%	Lump Sum	340,000.00	285,260.00
52	Ventilation Equipment—Furn. and Install. Complete	11.6%	.....	11.6%	Lump Sum	160,000.00	18,560.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	.....	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	16.2%	0.5%	16.7%	Lump Sum	210,000.00	35,070.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	1,783,999.32
Deductions—25% of Work Done	.....
Deduction—$100,000	.....
Deduction—10% of Work Done	178,399.93
Total Due to Date	1,605,599.69
Previous Payments	1,540,499.06
Balance Due on This Estimate	65,100.63

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held February 7, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From Jan. 1, 1936 to Jan. 31, 1936

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twenty
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	805,075	———	805,075	Cu. Yds.	$ 0.33	$265,674.75
2	Overhaul	3,136,910	217,778	3,354,688	Sta. Yds.	0.005	16,773.44
3	Structural Excavation—Class "A"	36,859	———	36,859	Cu. Yds.	1.20	44,230.80
4	Structural Excavation—Class "B"	268	———	268	Cu. Yds.	2.00	536.00
5	Shoulders	5,400	———	5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	2,887,317	75,490	2,962,807	Lbs.	0.04	118,512.28
7	Structural Steel	———	———	———	Lbs.	0.05	———
8	Concrete Structures—Class "A" Concrete	11,340	———	11,340	Cu. Yds.	15.50	175,770.00
9	Concrete Structures—Class "B" Concrete	1,228	———	1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch	———	———	———	Sq. Ft.	0.24	———
11	Portland Cement Concrete Pavement—6 Inch	31,101	———	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	42,609	———	42,609	Sq. Ft.	0.08	3,408.72
13	Penetration Oil Macadam Pavement	80,000	———	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curbs—6 Inch	3,252	———	3,252	Lin. Ft.	0.52	1,691.04
15	Concrete Curbs—12 Inch	———	———	———	Lin. Ft.	0.80	———
16	Concrete Curbs—6 Inch with Guard	40	———	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,832	———	3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	9,000	———	9,000	Sq. Ft.	0.13	1,170.00
19	Fill Protectors	4	2	6	Each	19.00	114.00
20	Corrugated Metal Pipe Culvert—8 Inch	596	120	716	Lin. Ft.	1.30	930.80
21	Corrugated Metal Pipe Culvert—12 Inch	468	———	468	Lin. Ft.	2.00	936.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046	———	1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154	———	154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	———	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	———	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	———	———	———	Lin. Ft.	2.00	———
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	———	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	———	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	232	———	232	Lin. Ft.	1.00	232.00
30	Vitrified Pipe Sewers—8 Inch	215	———	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	———	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	———	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	———	3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1	———	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4	———	4	Each	100.00	400.00
36	Storm Water Inlets—"C"	7	1	8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2	———	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	———	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	———	3	Each	36.00	108.00
40	Hand Hole	2	———	2	Each	30.00	60.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,198	———	2,198	Lin. Ft.	1.40	3,077.20
42	Piping Cast Iron—6 Inch	———	———	———	Lin. Ft.	1.50	———
43	Guard Rail	653	———	653	Lin. Ft.	0.80	522.40
44	Pipe Hand Rail	313	———	313	Lin. Ft.	3.00	939.00
45	Riprap	126	———	126	Cu. Yds.	5.00	630.00
46	Metal Cribbing	———	———	———	Lbs.	0.13	———
47	Stone or Gravel for Foundations	266	———	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	2,310	229	2,539	Lin. Ft.	325.00	825,175.00
49	Tunnel Construction—Type "B"	———	———	———	Lin. Ft.	400.00	———
50	Cross Adits	97	———	97	Lin. Ft.	40.00	3,880.00
51	Ventilation Buildings—West and East Bldgs., Complete	83.9%	1.9%	85.8%	Lump Sum	$340,000.00	291,720.00
52	Ventilation Equipment—Furn. and Install. Complete	11.6%	0.1%	11.7%	Lump Sum	160,000.00	18,720.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	———	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	16.7%	0.1%	16.8%	Lump Sum	210,000.00	35,280.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	———	———	———	Lump Sum	15,000.00	———

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved ———

Approved ———

Total Value of Work Done to Date	1,869,636.81
Deductions—25% of Work Done	———
Deduction—$100,000	———
Deduction—10% of Work Done	186,963.68
Total Due to Date	1,682,673.13
Previous Payments	1,605,599.39
Balance Due on This Estimate	77,073.74

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held March 10, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From February 1, 1936 to February 29, 1936

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twenty-one
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	805,075		805,075	Cu. Yds.	$ 0.33	265,674.75
2	Overhaul	3,354,688	287,287	3,641,975	Sta. Yds.	0.005	18,209.88
3	Structural Excavation—Class "A"	36,859		36,859	Cu. Yds.	1.20	44,230.80
4	Structural Excavation—Class "B"	268		268	Cu. Yds.	2.00	536.00
5	Shoulders	5,400		5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	2,962,807	88,759	3,051,566	Lbs.	0.04	122,062.64
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class "A" Concrete	11,340		11,340	Cu. Yds.	15.50	175,770.00
9	Concrete Structures—Class "B" Concrete	1,228		1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch	31,101		31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	42,609		42,609	Sq. Ft.	0.08	3,408.72
13	Penetration Oil Macadam Pavement	80,000		80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curbs—6 Inch	3,252		3,252	Lin. Ft.	0.52	1,691.04
15	Concrete Curbs—12 Inch				Lin. Ft.	0.80	
16	Concrete Curbs—6 Inch with Guard	40		40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,832		3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	9,000		9,000	Sq. Ft.	0.13	1,170.00
19	Fill Protectors	6		6	Each	19.00	114.00
20	Corrugated Metal Pipe Culvert—8 Inch	716		716	Lin. Ft.	1.30	930.80
21	Corrugated Metal Pipe Culvert—12 Inch	468		468	Lin. Ft.	2.00	936.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046		1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154		154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753		753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395		395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"				Lin. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326		1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579		579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	232		232	Lin. Ft.	1.00	232.00
30	Vitrified Pipe Sewers—8 Inch	215		215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10		10	Each	90.00	900.00
32	Manholes—Inlet Tops	4		4	Each	100.00	400.00
33	Manholes—Grating Tops	3		3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1		1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4		4	Each	100.00	400.00
36	Storm Water Inlets—"C"	8		8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2		2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1		1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3		3	Each	36.00	108.00
40	Hand Hole	2		2	Each	30.00	60.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,198		2,198	Lin. Ft.	1.40	3,077.20
42	Piping Cast Iron—6 Inch				Lin. Ft.	1.50	
43	Guard Rail	653		653	Lin. Ft.	0.80	522.40
44	Pipe Hand Rail	313		313	Lin. Ft.	3.00	939.00
45	Riprap	126		126	Cu. Yds.	5.00	630.00
46	Metal Cribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	266		266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	2,539	242	2,781	Lin. Ft.	325.00	903,825.00
49	Tunnel Construction—Type "B"				Lin. Ft.	400.00	
50	Cross Adits	97		97	Lin. Ft.	40.00	3,880.00
51	Ventilation Buildings—West and East Bldgs., Complete	85.8%	1.5%	87.3%	Lump Sum	$40,000.00	296,820.00
52	Ventilation Equipment—Furn. and Install. Complete	11.7%		11.7%	Lump Sum	160,000.00	18,720.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%		6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	16.8%		16.8%	Lump Sum	210,000.00	35,280.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete				Lump Sum	15,000.00	

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date	1,958,373.61
Deductions—5% of Work Done	
Deduction—$100,000	
Deduction—10% of Work Done	193,837.36
Total Due to Date	1,762,536.25
Previous Payments	1,682,673.13
Balance Due on This Estimate	79,863.12

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held April 9, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From March 1, 1936 to March 31, 1936

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twenty-two
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	805,075	———	805,075	Cu. Yds.	$ 0.33	265,674.75
2	Overhaul	3,641,975	73,968	3,715,943	Sta. Yds.	0.005	18,579.78
3	Structural Excavation—Class "A"	36,859	89	36,948	Cu. Yds.	1.20	44,337.60
4	Structural Excavation—Class "B"	268	93	361	Cu. Yds.	2.00	722.00
5	Shoulders	5,400	———	5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	3,051,566	109,070	3,160,636	Lbs.	0.04	126,425.44
7	Structural Steel	———	138,619	138,619	Lbs.	0.05	6,930.95
8	Concrete Structures—Class "A" Concrete	11,340	508	11,848	Cu. Yds.	15.50	133,644.00
9	Concrete Structures—Class "B" Concrete	———	———	———	Cu. Yds.	14.50	17,734.95
10	Portland Cement Concrete Pavement—8 Inch	1,228	-4.9	1,223.1	Sq. Ft.	0.24	———
11	Portland Cement Concrete Pavement—6 Inch	31,101	———	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	42,609	———	42,609	Sq. Ft.	0.08	3,408 72
13	Penetration Oil Macadam Pavement	80,000	———	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curbs—6 Inch	3,252	———	3,252	Lin. Ft.	0.52	1,691.04
15	Concrete Curbs—12 Inch	———	———	———	Lin. Ft.	0.80	———
16	Concrete Curbs—6 Inch with Guard	40	———	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,832	———	3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	9,000	———	9,000	Sq. Ft.	0.13	1,170.00
19	Fill Protectors	6	———	6	Each	19.00	114.00
20	Corrugated Metal Pipe Culvert—8 Inch	716	20	736	Lin. Ft.	1.30	956.80
21	Corrugated Metal Pipe Culvert—12 Inch	468	———	468	Lin. Ft.	2.00	936.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046	———	1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154	———	154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	———	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	———	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	———	———	———	Lin. Ft.	2.00	———
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	———	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	———	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	232	3	235	Lin. Ft.	1.00	235.00
30	Vitrified Pipe Sewers—8 Inch	215	———	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	———	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	———	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	———	3	Each	90.00	270.00
34	Storm Water Inlets—24 Inch Openings	1	———	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4	———	4	Each	100.00	400.00
36	Storm Water Inlets—"C"	8	———	8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2	———	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	———	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	———	3	Each	36.00	108.00
40	Hand Hole	2	———	2	Each	30.00	60.00
41	Underdrains—6 In. Perf. Corrug. Metal Pipe	2,198	160	2,358	Lin. Ft.	1.40	3,301.20
42	Piping Cast Iron—6 Inch	———	———	———	Lin. Ft.	1.50	———
43	Guard Rail	653	———	653	Lin. Ft.	0.80	522.40
44	Pipe Hand Rail	313	198	511	Lin. Ft.	3.00	1,533.00
45	Riprap	126	2	128	Cu. Yds.	5.00	640.00
46	Metal Cribbing	———	———	———	Lbs.	0.13	———
47	Stone or Gravel for Foundations	266	33	299	Cu. Yds.	3.00	897.00
48	Tunnel Construction—Type "A"	2,781	174	2,955	Lin. Ft.	325.00	960,375.00
49	Tunnel Construction—Type "B"	———	———	———	Lin. Ft.	400.00	———
50	Cross Adits	97	96	193	Lin. Ft.	40.00	7,720.00
51	Ventilation Buildings—West and East Bldgs., Complete	87.3%	0.8%	88.1%	Lump Sum	$40,000.00	299,540.00
52	Ventilation Equipment—Furn. and Install. Complete	11.7%	27.6%	39.3%	Lump Sum	160,000.00	62,880.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	———	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	16.8%	0.2%	17.0%	Lump Sum	$10,000.00	35,700.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	———	———	———	Lump Sum	15,000.00	———

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved ———

Approved ———

Total Value of Work Done to Date	$2,086,778.95
Deductions—5% of Work Done	———
Deduction—$100,000	———
Deduction—10% of Work Done	208,677.90
Total Due to Date	1,878,101.05
Previous Payments	$1,762,536.25
Balance Due on This Estimate	115,584.80

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

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DEFENDANT'S EXHIBIT XXX (Continued)

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held May 7, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From April 1, 1936 to April 30, 1936

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twenty-three
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	805,075	960	806,035	Cu. Yds.	$ 0.33	265,991.55
2	Overhaul	3,715,943	507,381	4,223,324	Sta. Yds.	0.005	21,116.62
3	Structural Excavation—Class "A"	36,948	407	37,355	Cu. Yds.	1.20	44,826.00
4	Structural Excavation—Class "B"	361	———	361	Cu. Yds.	2.00	722.00
5	Shoulders	5,400	———	5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	3,160,636	135,370	3,296,006	Lbs.	0.04	131,840.24
7	Structural Steel	138,619	124,757	263,376	Lbs.	0.05	13,168.80
8	Concrete Structures—Class "A" Concrete	11,848	450	12,298	Cu. Yds.	15.50	190,619.00
9	Concrete Structures—Class "B" Concrete	1,223.1	———	1,223.1	Cu. Yds.	14.50	17,734.95
10	Portland Cement Concrete Pavement—8 Inch	———	———	———	Sq. Ft.	0.24	———
11	Portland Cement Concrete Pavement—6 Inch	31,101	———	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	42,609	———	42,609	Sq. Ft.	0.08	3,408.72
13	Penetration Oil Macadam Pavement	80,000	———	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curbs—6 Inch	3,252	———	3,252	Lin. Ft.	0.52	1,691.04
15	Concrete Curbs—12 Inch	———	———	———	Lin. Ft.	0.80	———
16	Concrete Curbs—6 Inch with Guard	40	———	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,832	———	3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	9,000	———	9,000	Sq. Ft.	0.13	1,170.00
19	Fill Protectors	6	———	6	Each	19.00	114.00
20	Corrugated Metal Pipe Culvert—8 Inch	736	———	736	Lin. Ft.	1.30	956.80
21	Corrugated Metal Pipe Culvert—12 Inch	468	———	468	Lin. Ft.	2.00	936.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046	———	1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154	———	154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	———	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	———	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	———	———	———	Lin. Ft.	2.00	———
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	———	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	———	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	235	———	235	Lin. Ft.	1.00	235.00
30	Vitrified Pipe Sewers—8 Inch	215	———	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	———	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	———	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	———	3	Each	90.00	270.00
34	Storm Water Inlets—24 Inch Openings	1	———	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4	———	4	Each	100.00	400.00
36	Storm Water Inlets—"C"	8	———	8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2	———	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	———	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	———	3	Each	36.00	108.00
40	Hand Hole	2	———	2	Each	30.00	60.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,358	108	2,466	Lin. Ft.	1.40	3,452.40
42	Piping Cast Iron—6 Inch	———	———	———	Lin. Ft.	1.50	———
43	Guard Rail	653	———	653	Lin. Ft.	0.80	522.40
44	Pipe Hand Rail	511	———	511	Lin. Ft.	3.00	1,533.00
45	Riprap	128	———	128	Cu. Yds.	5.00	640.00
46	Metal Cribbing	———	———	———	Lbs.	0.13	———
47	Stone or Gravel for Foundations	299	36	335	Cu. Yds.	3.00	1,005.00
48	Tunnel Construction—Type "A"	2,955	356	3,311	Lin. Ft.	325.00	1,075,075.00
49	Tunnel Construction—Type "B"	———	———	———	Lin. Ft.	400.00	———
50	Cross Adits	193	6	199	Lin. Ft.	40.00	7,960.00
51	Ventilation Buildings—West and East Bldgs., Complete	88.1%	1.3%	89.4%	Lump Sum	340,000.00	303,960.00
52	Ventilation Equipment—Furn. and Install. Complete	39.3%	8.5%	47.8%	Lump Sum	160,000.00	76,480.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	3.0%	9.7%	Lump Sum	60,000.00	5,820.00
54	Electrical Equipment—Furn. and Install., Complete	17.0%	0.4%	17.4%	Lump Sum	210,000.00	36,540.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	———	———	———	Lump Sum	15,000.00	———

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved_____

Approved_____

Total Value of Work Done to Date	$2,245,607.90
Deductions—25% of Work Done	———
Deduction—$100,000	———
Deduction—10% of Work Done	224,560.79
Total Due to Date	2,021,047.11
Previous Payments	1,878,101.05
Balance Due on This Estimate	$ 142,946.06

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT YYY

June 10, 1936

File: Broadway Tunnel
Estimate No. 24
Six Companies of California,
P. O. Box 120,
Berkeley, California.

Gentlemen:

Enclosed please find our check in amount $148,-586.98, in payment of Estimate No. 24.

A copy of Estimate No. 24 is also enclosed.

Yours very truly,
JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
By (signed) JOHN R. HUNTER
Comptroller

JRH/VE
Encs.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. YYY. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From May 1, 1936 to May 31, 1936

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twenty-four
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	806,035	997	807,032	Cu. Yds.	$ 0.33	266,320.56
2	Overhaul	4,223,324	221,000	4,444,324	Sta. Yds.	0.005	22,221.62
3	Structural Excavation—Class "A"	37,355	137	37,492	Cu. Yds.	1.20	44,990.40
4	Structural Excavation—Class "B"	361	.....	361	Cu. Yds.	2.00	722.00
5	Shoulders	5,400	.....	5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	3,296,006	280,893	3,576,899	Lbs.	0.04	143,075.96
7	Structural Steel	263,376	.....	263,376	Lbs.	0.05	13,168.80
8	Concrete Structures—Class "A" Concrete	12,298	272	12,570	Cu. Yds.	15.50	194,835.00
9	Concrete Structures—Class "B" Concrete	1,223.1	.....	1,223.1	Cu. Yds.	14.50	17,734.95
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	31,101	.....	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	42,609	.....	42,609	Sq. Ft.	0.08	3,408.72
13	Penetration Oil Macadam Pavement	80,000	.....	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curbs—6 Inch	3,252	.....	3,252	Lin. Ft.	0.52	1,691.04
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	40	.....	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,832	.....	3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	9,000	.....	9,000	Sq. Ft.	0.13	1,170.00
19	Fill Protectors	6	.....	6	Each	19.00	114.00
20	Corrugated Metal Pipe Culvert—8 Inch	736	.....	736	Lin. Ft.	1.30	956.80
21	Corrugated Metal Pipe Culvert—12 Inch	468	10	478	Lin. Ft.	2.00	956.00
22	Corrugated Metal Pipe Culvert—15 Inch	1,046	.....	1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154	.....	154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	.....	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	.....	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	235	.....	235	Lin. Ft.	1.00	235.00
30	Vitrified Pipe Sewers—8 Inch	215	.....	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	.....	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	.....	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1	.....	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4	.....	4	Each	100.00	400.00
36	Storm Water Inlets—"C"	8	.....	8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2	.....	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	.....	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	.....	3	Each	36.00	108.00
40	Hand Hole	2	.....	2	Each	30.00	60.00
41	Underdrains—6 In. Perf. Corrug. Metal Pipe	2,466	536	3,002	Lin. Ft.	1.40	4,202.80
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	653	.....	653	Lin. Ft.	0.80	522.40
44	Pipe Hand Rail	511	98	609	Lin. Ft.	3.00	1,827.00
45	Riprap	128	.....	128	Cu. Yds.	5.00	640.00
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	335	2	337	Cu. Yds.	3.00	1,011.00
48	Tunnel Construction—Type "A"	3,311	435	3,746	Lin. Ft.	325.00	1,217,450.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	199	.....	199	Lin. Ft.	40.00	7,960.00
51	Ventilation Buildings—West and East Bldgs., Complete	89.4%	.....	89.4%	Lump Sum	340,000.00	303,960.00
52	Ventilation Equipment—Furn. and Install. Complete	47.8%	2.5%	50.3%	Lump Sum	160,000.00	80,480.00
53	Mechanical Equipment—Furn. and Install. Complete	9.7%	1.8%	11.5%	Lump Sum	60,000.00	6,900.00
54	Electrical Equipment—Furn. and Install. Complete	17.4%	2.1%	19.5%	Lump Sum	210,000.00	40,950.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date	$2,414,593.43
Deductions—10% of Work Done	241,459.34
Total Due to Date	2,173,134.09
Previous Payments	2,021,047.11
This Estimate	152,086.98
Deductions, Damages, Failure to Complete Within Contract Time, 7 Days at $500.00	3,500.00
Balance Due on This Estimate	$ 148,586.98

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT D-4

July 9, 1936

Six Companies of California,
1522 Latham Square Building,
Oakland, California.

Gentlemen:

Enclosed herewith please find Estimate No. 25 covering the period from June 1, 1936 to June 13, 1936, both dates inclusive, together with this District's check no. 2201 in your favor for the sum of $80,715.66 in payment of the amount due you on said estimate under the terms of your contract with the District dated June 4, 1934.

The District's check no. 1934 dated June 10, 1936, which was delivered to you on that date in payment of the amount due you under Estimate No. 24, which you returned to District with your letter of purported rescission dated June 13, 1936, is also enclosed and herewith tendered to you.

Yours very truly,
JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
By (signed) JOHN R. HUNTER
Comptroller

JRH:MC
Enc.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. D-4. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT D-4

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work

From June 1, 1936 to June 13, 1936

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twenty-five
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	807,032	.....	807,032	Cu. Yds.	$ 0.33	266,320.56
2	Overhaul	4,444,324	141,948	4,586,272	Sta. Yds.	0.005	22,931.36
3	Structural Excavation—Class "A"	37,492	275	37,767	Cu. Yds.	1.20	45,320.40
4	Structural Excavation—Class "B"	361	.....	361	Cu. Yds.	2.00	722.00
5	Shoulders	5,400	.....	5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	3,576,899	163,050	3,739,949	Lbs.	0.04	149,597.96
7	Structural Steel	263,376	6,931	270,307	Lbs.	0.05	13,515.35
8	Concrete Structures—Class "A" Concrete	12,570	38	12,608	Cu. Yds.	15.50	195,424.00
9	Concrete Structures—Class "B" Concrete	1,223.1	.....	1,223.1	Cu. Yds.	14.50	17,734.95
10	Portland Cement Concrete Pavement—8 Inch	.....	.....	.....	Sq. Ft.	0.34	.....
11	Portland Cement Concrete Pavement—6 Inch	31,101	.....	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	42,609	.....	42,609	Sq. Ft.	0.08	3,408.72
13	Penetration Oil Macadam Pavement	80,000	.....	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curbs—6 Inch	3,252	139	3,391	Lin. Ft.	0.52	1,763.32
15	Concrete Curbs—12 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curbs—6 Inch with Guard	40	.....	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,832	10	3,842	Sq. Ft.	0.25	960.50
18	Cement Sidewalks	9,000	1,454	10,454	Sq. Ft.	0.13	1,359.02
19	Fill Protectors	6	.....	6	Each	19.00	114.00
20	Corrugated Metal Pipe Culvert—8 Inch	736	.....	736	Lin. Ft.	1.30	956.80
21	Corrugated Metal Pipe Culvert—12 Inch	478	.....	478	Lin. Ft.	2.00	956.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046	.....	1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154	.....	154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	.....	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	.....	1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	235	.....	235	Lin. Ft.	1.00	235.00
30	Vitrified Pipe Sewers—8 Inch	215	.....	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	.....	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	.....	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1	.....	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4	.....	4	Each	100.00	400.00
36	Storm Water Inlets—"C"	8	.....	8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2	.....	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	.....	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	.....	3	Each	36.00	108.00
40	Hand Hole	2	.....	2	Each	30.00	60.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	3,002	358	3,360	Lin. Ft.	1.40	4,704.00
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	653	.....	653	Lin. Ft.	0.80	522.40
44	Pipe Hand Rail	609	.....	609	Lin. Ft.	3.00	1,827.00
45	Riprap	128	.....	128	Cu. Yds.	5.00	640.00
46	Metal Cribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	337	.....	337	Cu. Yds.	3.00	1,011.00
48	Tunnel Construction—Type "A"	3,746	258.60	4,004.60	Lin. Ft.	325.00	1,301,495.00
49	Tunnel Construction—Type "B"	.....	.....	.....	Lin. Ft.	400.00	.....
50	Cross Adits	199	.....	199	Lin. Ft.	40.00	7,960.00
51	Ventilation Buildings—West and East Bldgs., Complete	89.4%	.....	89.4%	Lump Sum	340,000.00	303,960.00
52	Ventilation Equipment—Furn. and Install. Complete	50.3%	1.76%	52.06%	Lump Sum	160,000.00	83,296.00
53	Mechanical Equipment—Furn. and Install. Complete	11.5%	0.50%	12.00%	Lump Sum	60,000.00	7,200.00
54	Electrical Equipment—Furn. and Install. Complete	19.5%	0.23%	19.73%	Lump Sum	210,000.00	41,433.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by JOHN A. MORIN

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date		$2,511,499.72
Deductions—10% of Work Done	$251,149.97	
Deductions May 31 Estimate	3,500.00	
Deductions, Damages Failure to Complete Within Contract Time This Estimate 13 Days at $500	6,500.00	
	$261,149.97	261,149.97
		$2,250,349.75
Previous Payments		2,169,634.09
		$ 80,715.66

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

Tightly Bound

DEFENDANT'S EX. O-4.

Grant Agreement, dated as of March 9, 1934, between Joint Highway District No. 13 of the State of California (herein called the "First Party"), and the United States of America (herein called the "Second Party").

Whereas, the Second Party, acting in conformity with Title II, National Industrial Recovery Act, (herein called the "Act"), approved June 16, 1933, is authorized and empowered to grant to any State, Municipality or other public body not in excess of 30 per centum of the cost of the labor and materials employed upon any public works project of any such State, municipality or other public body when such project has been included in the comprehensive program prepared pursuant to Section 202 of the Act; and

Whereas, the First Party has duly filed with the Second Party an application (Docket Number 2231) for a Grant to aid in financing the construction of the highway improvements described in Paragraph 2, Part One (herein called the "Project"), to be owned and operated by the First Party; and

Whereas, the First Party has represented that it (a) has full power to and will undertake and complete the Project; (b) will provide from lawful sources, funds, which, together with the amount to be represented by the Grant, will be sufficient to pay all costs thereof; and (c) will apply such Grant

solely to the cost of constructing the Project; and

Whereas, with a view to increasing employment quickly, and to aid said First Party in financing the Project, upon the foregoing representations, said Project has been included in said comprehensive program:

Now, therefore, the First Party and the Second Party hereby agree:

Part One

PROCEDURE AND GENERAL PROVISIONS

1. Amount, Use and Purpose. Subject to the terms and conditions set forth below, the Second Party will grant to the First Party an amount not to exceed 30 per centum of the cost of the labor and materials employed upon the Project, (such amount being herein called the "Grant"), but in no event to exceed in the aggregate $1,095,000. The First Party will accept the Grant, and will construct the Project in accordance with plans and specifications submitted to and approved by the Second Party, all pursuant to Title II of the Act, the rules and regulations adopted by the Second Party relative thereto, and the Constitution and Statutes of the State of California.

2. The Project. The Project (more fully described in the application of the First Party), to aid in the financing of which the Grant will be made, is substantially as follows: The construction of 2.82 miles of main highway, 40 feet wide, with asphaltic macadam surface on rock base, in-

cluding twin bore tunnels averaging 2,910 feet in length; 3 reinforced concrete overhead structure; 1 reinforced viaduct; 1 reinforced concrete railway grade separation structure; 2 portal buildings housing ventilation equipment; and retaining walls and drainage facilities; all with such minor alterations or modifications thereof or additions thereto as may from time to time, be approved by the Second Party before or during the course of construction.

3. Preliminary Proceedings by First Party. Promptly after receipt from the Second Party of an unexecuted copy of this Agreement, the First Party will;

(a) Adopt a resolution approving this Agreement, and authorizing and directing the execution and delivery thereof by the officials designated to sign the same on its behalf;

(b) Send to the Second Party complete extracts from the minutes of the meetings of the First Party's governing body showing all proceedings taken incident to such authorization, including a copy of said resolution, all duly certified, and three signed copies of this Agreement;

(c) Commence all necessary proceedings, if any, to authorize the construction of the Project, and to obtain funds, which, together with the amount to be represented by the Grant, will be sufficient to pay all the costs of constructing the Project. The term "cost of constructing the Project", as used in this Agreement, shall include all costs of acquir-

ing all necessary lands, easements, franchises, and rights-of-way necessary to the completion and operation of the Project;

(d) Apply for all necessary authorizations, permits, licenses and approvals from Federal, State, county, municipal and other authorities for the construction of the Project;

(e) Submit to the Second Party plans, drawings, and specifications of the work and materials called for by all contracts let, or proposed to be let; the latest data as to the expected cost of the Project; a statement as to when and how it is proposed to advertise for bids and to let contracts for work; forms of bids, and copies of the advertisements thereof if heretofore advertised; a statement as to when it is proposed to acquire the necessary lands, easements, franchises, and rights-of-way; and any other details or data that may be requested by the Second Party's engineers.

4. Construction of Project. On or before the date of the execution by the Second Party of this Agreement, the First Party may, and within such time thereafter, as shall be satisfactory to the Second Party, the First Party will commence or cause to be commenced the construction of the Project and will thereafter continue the same with all practicable dispatch, in an efficient and economical manner, at a reasonable cost, and in accordance with plans, drawings, specifications and construction contracts which shall be in form and substance as approved by the Second Party, and in accord-

ance with such engineering supervision and inspection as the Second Party or its representatives may require. Except with the prior written consent of the Second Party, no materials or equipment for the Project shall be purchased by the First Party subject to any chattel mortgage or to any conditional sale or title retention agreement.

5. Completion of Proceedings. As soon as practicable after the execution by the Second Party of this Agreement, the First Party will complete all necessary proceedings and procure all necessary authorizations, permits, licenses, and approvals referred to in Paragraph 3 (c) and (d), Part One, hereof; will obtain the necessary funds, or will take appropriate proceedings to legally obtain the necessary funds, which, together with the amount to be represented by the Grant, will be sufficient to pay all costs of constructing the Project; and will lawfully acquire all lands, easements, franchises, and rights-of-way necessary to the completion of the Project, and to put the Project in operation.

6. First Requisition. After the First Party shall have complied with the requirements of Paragraphs 3 and 5, Part One, hereof, and shall have expended not less than fifty per centum of the estimated cost of constructing the Project, the First Party may, at any time thereafter, file with the Second Party a requisition, requesting the Second Party to pay to the First Party, as provided in Paragraph 7, Part One, hereof, the first portion of the Grant, such requisition to be accompanied by:

(a) One certified copy of each necessary authorization, permit, license and approval from Federal, State, county, municipal and other authorities for the construction of the Project;

(b) A signed and dated opinion of the duly qualified and acting attorney of the First Party to the effect that the First Party has complied with all the requirements of Paragraph 5, Part One, hereof, and that all such proceedings are in accordance with the Constitution and Statutes of the State of California. Such opinion shall also state that the First Party has lawfully obtained and/or arranged to obtain the funds, which, together with the amount to be represented by the Grant, may be used lawfully to pay all costs of constructing the Project;

(c) A signed and dated affidavit of a duly authorized officer of the First Party, approved by the engineer or architect in responsible charge of construction of the Project, covering in such detail as the Second Party's engineers request:

(1) The purposes for which the First Party proposes to expend such portion of the Grant;

(2) An accounting for all deposits in and expenditures from the special account or accounts referred to in Paragraph 2, Part Three, hereof;

(3) The cost of the labor and materials employed upon the Project to the date thereof;

(4) The quantities of work actually completed to the date thereof;

(5) The amount of funds expended upon the Project to the date thereof; and

(6) The amount of funds expended to the date thereof for labor and materials employed upon the Project;

(d) A signed and dated no-litigation certificate of the duly qualified and acting attorney of the First Party; and

(e) A statement by each bank in which have been deposited, in the special account or accounts referred to in Paragraph 2, Part Three, hereof, the funds for the construction of the Project, showing all deposits made therein and the balance then remaining in each such special account.

The requisition and each of the documents accompanying same shall be in form and substance satisfactory to the Second Party, and, except for those described in Paragraph 6 (a) Part One, hereof, shall bear the same date.

7. First Payment. If such requisition and documents accompanying the same are satisfactory to the Second Party, then, subject to the terms and conditions of this Agreement, upon reasonable notice to the First Party, and within a reasonable time after the receipt by the Second Party of such requisition and other documents, (but not earlier than ten days after the receipt thereof, unless the Second Party shall waive such time limit), the Second Party will pay to the First Party an amount equal to twenty-five per centum of the total cost of the labor and materials employed upon the Project, as, in the opinion of the Second Party, is shown

in all statements theretofore approved by the Second Party. Such payment will be made at the Federal Reserve Bank of San Francisco, San Francisco, California, or at such other place or places as the Second Party may designate, against delivery by the First Party of its receipt therefor.

8. Intermediate Requisitions. From time to time after such first payment, but not oftener than once in thirty days, (unless otherwise satisfactory to the Second Party), the First Party may file requisitions with the Second Party, requesting the Second Party to make additional payments on account of the Grant, each such requisition to be accompanied by:

(a) Documents corresponding to those described in Paragraph 6 (b) and (d), Part One hereof;

(b) A signed and dated affidavit of a duly authorized officer of the First Party, approved by the engineer or architect in responsible charge of construction of the Project, covering in such detail as the Second Party's engineers may request:

(1) The purposes for which the First Party proposes to expend such portion of the Grant;

(2) An accounting for all expenditures theretofore made on the Project, in so far as such expenditures have not been previously so accounted for;

(3) The cost of the labor and materials employed upon the Project to the date thereof;

(4) The quantities of work actually completed to the date thereof;

(5) The quantities of work actually completed during each of the periods between all respective requisitions;

(6) The amount of funds expended upon the Project during each such period; and

(7) The amount of funds expended during each such period for labor and materials employed upon the Project;

(c) A statement by each bank in which have been deposited, in the special account or accounts referred to in Paragraph 2, Part Three, hereof, the funds (including any previous payments on account of the Grant) for the construction of the Project, showing the balance then remaining in each special account, provided no such statement need be submitted by any bank in which no such balance remains on deposit and which has previously so certified.

The requisition and each of the documents accompanying the same shall be in form and substance satisfactory to the Second Party and shall bear the same date.

9. Intermediate Payments. If such requisition and documents accompanying same are satisfactory to the Second Party, then, subject to the terms and conditions of this Agreement, upon reasonable notice to the First Party, and within reasonable time after receipt by the Second Party of such requisition and other documents, the Second Party

will pay to the First Party an amount equal to 25 per centum of the cost of the labor and materials employed upon the Project, not exceeding, however, with all previous payments on account of the Grant, an amount equal to 25 per centum of the total cost of such labor and materials as shown in the statements theretofore approved by the Second Party, but in no event, to exceed, together with all such previous payments, in the aggregate, the sum of $912,500. Each such payment shall be made at the place or places as hereinbefore provided for, against delivery by the First Party of its receipt therefor.

10. Final Requisition. When the Project has been completed and all costs in connection therewith have been determined, then the First Party may file the final requisition with the Second Party, requesting the Second Party to make the final payment on account of the Grant. Such requisition shall be accompanied by:

(a) Documents corresponding to those described in Paragraph 6 (b) and (d), and Paragraph 8 (c), Part One, hereof:

(b) An affidavit corresponding to that described in Paragraph 8 (b), Part One, hereof, which shall also be approved by the Government Engineer:

(c) An affidavit by the engineer or architect in responsible charge of construction of the Project, (which shall be approved by the Government Engineer), showing, among other things, and in such detail as shall be satisfactory to the Second Party;

(1) The quantities of work completed during each of the periods between the dates of each respective requisition;

(2) The cost of labor and materials employed upon the Project, the total cost of the Project, and separately, the amounts of such cost expended; and

(3) The completion of the Project in accordance with the plans and specifications therefor.

The term "Government Engineer" as used herein, shall mean the State Engineer (P.W.A.), or his duly authorized representative, or any person to whom his duties or functions may be transferred by the Federal Emergency Administration of Public Works, or its successors.

11. Final Payment. If such requisition and the documents accompanying the same are satisfactory to the Second Party, then, subject to the terms and conditions of this Agreement, upon reasonable notice to the First Party, and within a reasonable time after receipt by the Second Party of such requisition and other documents, the Second Party will pay to the First Party a sum of money, which, together with all payments theretofore made on account of the Grant, shall not exceed 30 per centum of the cost of labor and materials employed upon the Project, but in no event, to exceed, in the aggregate; together with all such previous payments, the sum of $1,095,000. Such final payment shall be made at the place or places as hereinbefore provided

for, against delivery by the First Party of its receipt therefor.

Part Two

CONSTRUCTION CONTRACTS.

In Consideration of the Grant the First Party Covenants That:

1. Construction Contracts. All construction contracts made by the First Party and all subcontracts for work on the Project shall be subject to the rules and regulations adopted by the Second Party to carry out the purposes and control the administration of the Act, and shall contain provisions appropriate to insure that:

(a) Convict Labor. No convict labor shall be employed on the Project, and no materials manufactured or produced by convict labor shall be used on the Project.

(b) 30-Hour Week. Except in executive, administrative and supervisory positions, so far as practicable and feasible in the judgment of the Second Party, no individual directly employed on the Project shall be permitted to work more than thirty hours in any one week, but in accordance with rules and regulations from time to time made by the Second Party, this provision shall be construed to permit working time lost because of inclement weather or unavoidable delays in any one week, to be made up in the succeeding twenty days.

(c) Wages.

(1) All employees shall be paid just and reasonable wages which shall be compensation sufficient to provide, for the hours of labor as limited, a standard of living in decency and comfort;

(2) All contracts and subcontracts shall further prescribe such minimum wage rates for skilled and unskilled labor as may be determined by the Second Party and shall be subject to all rules and regulations which the Second Party may promulgate in connection therewith. Such minimum rates, if any, shall also be stated in all proposals of bids submitted, including those of subcontractors; and a clearly legible statement of all wage rates to be paid the several classes of labor employed on the work shall be posted in a prominent and easily accessible place at the site of the work. All contractors shall keep a true and accurate report of the hours worked by and the wages paid to each employee and shall furnish the Second Party with sworn statements thereof on demand;

(3) All employees shall be paid in full not less often than once each week and in lawful money of the United States of America in the full amount accrued to each individual at the time of closing of the pay roll, which shall be at the latest date practicable prior to the date of payment, and there shall be no reduction on account of goods purchased, rent, or other obligations, but such obligations shall be subject to collection only by legal process.

(d) Labor Preferences. Preference shall be given, where they are qualified, to ex-service men

with dependents, and then in the following order:

(1) To citizens of the United States and aliens who have declared their intention of becoming citizens, who are bona fide residents of the County of Alameda or the County of Contra Costa, State of California; and

(2) To citizens of the United States and aliens who have declared their intention of becoming citizens, who are bona fide residents of the State of California, provided, that these preferences shall apply only where such labor is available and qualified to perform the work to which the employment relates.

(e) Employment Services. To the fullest extent possible, labor required for the Project and appropriate to be secured through employment services, shall be chosen from lists of qualified workers submitted by local employment agencies designated by the United States Employment Service; provided, however, that organized labor, skilled and unskilled, shall not be required to register at such local employment agencies but shall be secured in the customary ways through recognized union locals. In the event, however, that qualified workers are not furnished by the union locals within 48 hours (Sundays and holidays excluded) after request is filed by the employer, such labor may be chosen from lists of qualified workers submitted by local employment agencies designated by the United States Employment Service. In the selection of

workers from lists prepared by such employment agencies and union locals, the labor preferences provided in Paragraph 1 (d), Part Two, hereof, shall be observed in accordance with such rules and regulations as the Second Party may prescribe.

(f) Human Labor. In accordance with such rules and regulations as the Second Party may prescribe, the maximum of human labor shall be used in lieu of machinery wherever practicable and consistent with sound economy and public advantage; and to the extent that the work may be accomplished at no greater expense by human labor than by the use of machinery, and labor of requisite qualifications is available, such human labor shall be employed.

(g) Accident Prevention. Every construction contract for work on the Project shall contain an undertaking to comply with all applicable provisions of the laws and building construction codes of the State, Territory, District and/or municipality in which the work is done, and with any regulations for the protection of workers which may be promulgated by the Second Party.

(h) Compensation Insurance. Every construction contract for work on the Project shall contain a provision requiring the employer to furnish compensation insurance for injured workers and to give proof of such adequate insurance satisfactory to the Second Party.

(i) Persons Entitled to Benefits of Labor Provisions. Every person who performs the work of a laborer or of a mechanic on the Project, or any part thereof, shall be entitled to the benefits of the labor and wage provisions hereof, regardless of any contractual relationship between the contractor or subcontractor and such laborer or mechanic. There shall be no discrimination in the selection of labor on the ground of race, creed or color.

(j) Bonding of Contracts. Construction contracts shall be supported by adequate surety or other bonds or security satisfactory to the Second Party for the protection of labor and material-men employed on the Project or any part thereof.

(k) Materials. So far as articles, materials, and supplies produced in the United States are concerned, only articles, materials and supplies produced under codes of fair competition adopted pursuant to the provisions of Title I of the Act, or under the President's Reemployment Agreement, shall be used in work on the Project, except when the Second Party determines that this requirement is not in the public interest or that the consequent cost is unreasonable. So far as feasible and practicable, and subject to the above, preference shall be given to the use of locally produced materials, if such use does not involve higher cost, inferior quality, or insufficient quantity, subject to the determination of the Second Party; but there shall be no requirements providing price differentiations for

or restricting the use of materials to those produced within the Nation or State.

(l) Inspection and Records. The Second Party, through its authorized agents, shall have the right to inspect all work as it progresses and shall have access to all pay rolls, records of personnel, invoices of materials, and other data relevant to the performance of the contract.

(m) Reports. Subject to such rules and regulations as the Second Party may prescribe, contractors and subcontractors shall make reports in triplicate to the Second Party monthly within five days after the close of each calendar month on forms to be furnished by the United States Department of Labor, which reports shall include the number of persons on their pay rolls; the aggregate amount of the pay rolls; the man-hours worked; wage scales paid to various classes of labor; and the total expenditures for materials. The contractors shall also furnish to the Second Party the names and addresses of all subcontractors at the earliest dates practicable.

(n) Compliance With Title I of the Act. All contractors and subcontractors must comply with the conditions prescribed in Section 7 (a) (1) and Section 7 (a) (2) of Title I of the Act.

2. Restriction as to Contractors. No contract shall be let to any contractor or subcontractor who has not signed and complied with the applicable

approved code of fair competition adopted under Title I of the Act for the trade or industry or subdivision thereof concerned, or, if there be no such approved code, who has not signed and complied with the provisions of the President's Reemployment Agreement.

3. Termination for Breach. The First Party will enforce compliance with all provisions of this part of this Agreement, and, as to any work done by it in connection with the construction of the Project, will itself comply therewith. All construction contracts shall provide that if any such provisions are violated by any contractor or subcontractor, the First Party may with the approval of the Second Party, and shall at the request of the Second Party, terminate by written notice to the contractor or subcontractor, the contract of such contractor or subcontractor, and have the right to take over the work and prosecute the same to completion by contract or otherwise and such contractor or subcontractor and his sureties shall be liable for any excess cost occasioned thereby and/or, if so requested by the Second Party, the First Party shall withhold from such contractor or subcontractor so much of the compensation due to him as may be necessary to pay to laborers or mechanics the difference between the rate of wages required by the contract and the rate of wages actually paid to the laborers and mechanics.

4. Force Labor. Provided, however, that if prices in the bids are excessive, the First Party reserves the right, anything in this Agreement to the contrary notwithstanding, to apply to the Second Party for permission to do all or any part of the Project by day labor, upon such conditions as the Second Party may impose, with the understanding that all provisions in this Agreement, including those relating to labor, wages, hours and recruitment, shall be observed.

Part Three.

MISCELLANEOUS

1. Conditions Precedent to the Second Party's Obligations. The Second Party shall be under no obligation to make the Grant or any part thereof:

(a) Cost of Project. If the Second Party shall not be satisfied that the First Party will be able to construct the Project within the cost estimated at the time when the Grant was approved by it, unless, in the event that additional funds appear to the Second Party to be necessary in order to pay in full the cost of the construction of the Project, the Second Party shall be satisfied that the First Party will be able to obtain such funds, as needed, through additional borrowing or otherwise;

(b) Compliance. If the First Party shall not have complied, to the satisfaction of the Second Party, with all agreements and conditions contained

or referred to in this Agreement theretofore to be complied with by the First Party;

(c) Legal Matters. If the Second Party shall not be satisfied as to all legal matters and proceedings affecting the Project;

(d) Representations. If any representations made by the First Party in this Agreement or in the application for the Grant or any other data submitted by the First Party shall be found by the Second Party to be incorrect or incomplete in any material respect;

(e) Financial Condition. If, in the judgment of the Second Party, the financial condition of the First Party shall have changed unfavorably in a material degree from its condition as theretofore represented to the Second Party.

No waiver by the Second Party, express or implied, of any such condition shall constitute a waiver thereof as applied to any subsequent obligation of the Second Party under this Agreement.

2. Deposit of Proceeds. The First Party will deposit the Grant, and all funds which it has represented to the Second Party as on hand or hereafter available for the construction of the Project, in a bank or banks which are members of the Federal Reserve System, in a special account or accounts.

3. Disbursement of Proceeds. The First Party will expend the funds in such special account or accounts only in paying the cost of constructing the Project.

4. Information. During the construction of the Project, the First Party will furnish to the Second Party all such information and data as the Second Party's engineers may request as to the construction, cost and progress of the work.

5. Representations and Warranties. The First Party represents and warrants as follows:

(a) Authorization. All necessary authorization, permits, licenses and approvals from Federal, State, county, municipal and other authorities have been or will be obtained for the construction and operation of the Project.

(b) Litigation. No litigation or other proceedings are now pending or threatened which might adversely affect the powers and authority of the First Party in reference to the construction or financing of the Project, or the financial condition of the First Party.

(c) Fees and Commissions. No fee or commission has been or will be paid by the First Party or any of its officers, employees, agents or representatives, and no agreement to pay a fee or commission has been or will be entered into by or on behalf of the First Party or any of its officers, employees, agents or representatives, in order to secure the Grant hereunder.

(d) Affirmation. Every statement contained in this Agreement, in the application for a Grant, in any supplement thereto or amendment thereof, and any other data submitted or to be submitted to the

Second Party by or on behalf of the First Party is, or when so submitted will be, correct and complete, and no relevant fact materially affecting the Project or the financing thereof by the First Party has been or will be omitted therefrom.

6. Indemnification. The First Party will indemnify the Second Party against any loss or liability incurred by reason of any inaccuracy or incompleteness in any representation contained herein.

7. Use of Second Party's Name. Without the prior written consent of the Second Party, the First Party will not refer to this Agreement or to any Grant authorized or made hereunder as an inducement for the purchase of any securities of the First Party, and will not permit any purchaser from it of any such securities to do so.

8. Expenses. The First Party will pay all costs, charges and expenses incident to compliance with all the terms and conditions of this Agreement on its part to be complied with, including, without limiting the generality of the foregoing, the cost of preparing, executing and delivering to the Second Party all the documents required herein to be furnished by the First Party.

9. Supplemental Instruments. Upon request, the First Party will furnish such data, agreements and other instruments as the Second Party may deem necessary or desirable in connection with the performance of the obligations of the First Party under this Agreement.

10. Agreement Not for the Benefit of Third Parties. This Agreement is not for the benefit of any person or corporation other than the parties hereto.

11. Interest of Member of Congress. No Member of or Delegate to Congress shall be admitted to any share or part of this Agreement, or to any benefit to arise thereupon.

12. Miscellaneous. No rights of the First Party hereunder shall be assignable except with the prior written consent of the Second Party. All obligations of the First Party shall cease upon payment in full of all costs of constructing the Project. This Agreement contains the entire agreement between the parties, and shall be governed by and construed in accordance with the laws of the District of Columbia.

13. Undue Delay by the First Party. The Second Party shall have the right to rescind the allotment for the Project and annul any obligation to make a grant to the First Party unless the First Party shall within a reasonable time:

(a) Sign and return to the Second Party three copies of this Agreement; as provided in Paragraph 3, Part One hereof. (For the purposes of this subparagraph 13 (a) a reasonable time shall be deemed to be ten days in the ordinary course of events or such longer period as shall be allowed in the absolute discretion of the Federal Emergency Administrator of Public Works);

(b) Comply with all the provisions of Paragraph 4, Part One hereof.

The Federal Emergency Administrator of Public Works shall determine in his absolute discretion what constitutes a reasonable time within the meaning of this Paragraph 13.

In Witness Whereof, the First Party and the Second Party have respectively caused this Agreement to be duly executed as of the day and year first above written.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA.

[Seal] By THOMAS E. CALDECOTT,
President.

Attest:
HARRY M. STOW,
Secretary.

UNITED STATES OF AMERICA,
By HAROLD L. ICKES,
Federal Emergency Administrator of Public Works.

[Endorsed]: U. S. Dist. Ct. N. D. Cal., No. 20101-R. Defendant's Exhibit O-4. Filed May 26, 1938. Walter B. Maling, Clerk. J. A. Schaertzer, Deputy Clerk.

[Clerk's Note: Excerpt from stipulation of counsel re portions of record to be printed:

"(48). It is stipulated that an agreed statement of facts in the form hereto attached and marked 'Exhibit B' shall be printed in the record in lieu of defendant's exhibits X-1, X-2, X-4, to X-10 both inclusive, and X-12 to X-102, both inclusive."]

EXHIBIT "B"

AGREED STATEMENT OF FACTS PROVED BY DEFENDANT'S EXHIBITS X-1, X-2, X-4 TO X-10, BOTH INCLUSIVE, X-12 TO X-102, BOTH INCLUSIVE, WHICH EXHIBITS WERE OFFERED IN EVIDENCE BY DEFENDANT AND CROSS-COMPLAINANT AND RECEIVED IN EVIDENCE IN SUPPORT OF CROSS-COMPLAINT.

It Is Stipulated by and between all parties to this appeal that during the trial of the issues raised by the cross-complaint, defendant and cross-complainant offered and there was received in evidence defendant's exhibits Nos. X-1, X-2, X-4 to X-10, both inclusive, X-12 to X-102, both inclusive. These are formal documents, are lengthy and will greatly enlarge and encumber the record if included in the printed record on appeal.

It Is Further Stipulated that the printing of said exhibits may be omitted from the printed

record on appeal and this agreed statement of facts be printed in the record on appeal and considered in lieu thereof.

Said exhibits proved among other things the following facts:

After plaintiff ceased work on June 13, 1936, on the contract between plaintiff and defendant, and on August 17, 1936, the board of directors of defendant adopted a resolution approving a supplement to the specifications (Defs. Ex. X-3) describing the work then remaining to be done on the project of the District, which work had been left unfinished by plaintiff, which supplement made no change in the character or extent of the work from that required by the original contract between plaintiff and defendant, as applied to the then unfinished work. Said supplement was thereafter approved by the Director of the Department of Public Works of the State of California. Thereafter, after the adoption of a proper resolution by its board of directors, defendant advertised for the time and in the manner required by law for bids to be received on September 11, 1936, for a contract for the completion of its said project. No bids were submitted to defendant under its said call for bids.

On September 23, 1936, the board of directors of defendant adopted a resolution rescinding the supplement to the specifications approved August 17, 1936, and approved another supplement to the specifications (Defs. Ex. X-11) which described the un-

finished work and divided it into eight subdivisions called in said supplement Schedules A, B, C, D, E, F, G and H, and which provided for completing the work under eight separate contracts. The character and extent of the work to be done was not changed from that required by the original contract between plaintiff and defendant as applied to the unfinished work. Thereafter, said supplement was approved by the Director of the Department of Public Works of the State of California.

Defendant duly and regularly advertised for bids to complete the work specified in each of said schedules. Bids were received for performing the work included in each of said respective schedules and contracts were let accordingly in each case to the lowest responsible bidder respectively, one contract for each schedule of work. Defendant's Ex. X-11 was a part of each of said contracts and remained a part thereof until completion of same. The defendant paid the respective contractors under the respective schedules the amount specified in defendant's Ex. X-109. Thereafter the work was completed under each of said contracts and accepted by defendant. The work required to be done under said schedules collectively, was the identical work left unfinished by plaintiff when it ceased work on defendant's project on June 13, 1936; no new or additional work was included in any of the schedules or in any call for bids or in any new contract. All contracts were duly and regularly approved and

let in accordance with the law governing said District in the doing of public work.

The following is a tabulation showing in the various columns thereof the following facts:

Column 1. Title of schedule.

Column 2. Name of contractor for the schedule, to whom the contract was awarded, and who did the work on the schedule.

Column 3. Date on which contract was made between defendant and contractor named in Column 2.

Column 4. Date of actual completion of work.

Column 5. Amount or number of dollars deducted from contract price paid to contractor for the schedule as liquidated damages.

1. Schedule	2. Name of Contractor	3. Date of Letting Contract	4. Date of Completion	5. Liquidated Damages Deducted
A	Pollock & Clifford	Nov. 9, 1936	June 22, 1937	none
B	R. G. Clifford	Dec. 24, 1936	June 22, 1937	"
C	Fred K. Du Puy	Feb. 19, 1937	Nov. 27, 1937	$1[illegible],000
D	E. T. Lesure	Feb. 8, 1937	Dec. 1, 1937	none
E	Alta Electric & Mechanical Company, Inc.	Jan. 7, 1937	Dec. 1, 1937	"
F	Alta Electric & Mechanical Company, Inc.	Apr. 8, 1937	Sept. 4, 1937	"
G	Heafey-Moore Co.	Jan. 12, 1937	Nov. 9, 1937	"
H	Berkeley Steel Construction Company, Inc.	Apr. 30, 1937	Sept. 18, 1937	"

Of the above schedules, Schedule A was for the completion of excavation of tunnels and cross adit and completion of construction of concrete arch ring lining of tunnels and cross adit.

Schedule B was for the completion of grouting in the tunnels around the concrete ring which had been installed by plaintiff.

Schedule C was for the completion of tunnel construction remaining to be completed after concrete arch ring tunnel lining was constructed and grouting was completed.

Schedule D was for the completion of the ventilation buildings.

Schedule E was the completion of ventilation equipment, mechanical equipment and electrical equipment.

Schedule F was the furnishing and installation of carbon monoxide detectors and recorders.

Schedule G was the completion of highway construction and appurtenant structures.

Schedule H was for the construction and furnishing of certain steel structures.

It Is Further Stipulated that appellants and each of them by making this stipulation do not waive and shall not be considered as waiving any objections made at the trial or exceptions taken as to the admissibility of any such exhibits, nor do said appellants or any of them waive any defenses interposed to said cross-complaint.

The Parties Further Stipulate that if at any time during this appeal it should appear that the inspection of any of said original exhibits is necessary or desirable the court may examine such orig-

inals, all of which have been transmitted by the Clerk of the District Court to the Clerk of this Court. That if it further should appear that in order to comply with any rule of this court, or to properly determine this appeal, the whole or any portion of said exhibits to which this stipulation applies are required to be printed the appellant will forthwith print and furnish a supplemental record and file the same herein and cause all due and regular certification to be made thereto, and the said defendant and cross-complainant, the appellee herein, is not to be prejudiced in any way because of this stipulation or because it consents to the omission of the printing of said exhibits or any part thereof from the printed record.

DEFENDANT'S EXHIBIT X-3.

JOINT HIGHWAY DISTRICT No. 13.
OF THE
STATE OF CALIFORNIA.

SUPPLEMENT TO SPECIFICATIONS.

For Construction of Project of the District, Including Highway, Highway Tunnel and Approaches with Appurtenant Structures, Adopted March 30, 1933, as Amended and Supplemented by Amendments and Supplements to Said Specifications Adopted January 9, 1934 and April 3, 1934 Respectively.

WALLACE B. BOGGS,
District Engineer.

DIRECTORS

Thomas E. Caldecott.....President
Harry M. Stowe.....Secretary
Henry L. Hinman.....Treasurer

LEGAL.

Archibald B. Tinning.....Attorney

Adopted August 17, 1936.

Specification No.....
Set No.....

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA.

Office of
WALLACE B. BOGGS,
District Engineer
1448 Webster Street,
Oakland California.

Adopted August 17, 1936.

Supplement to Specifications for Construction of Project of the District, Including Highway, Highway Tunnel and Approaches with Appurtenant Structures, Adopted March 30, 1933, as Amended and Supplemented by Amendments and Supplements to said Specifications Adopted January 9, 1934 and April 3, 1934 Respectively.

PART I. STATEMENT OF CONDITIONS.

A Contractor under contract with Joint Highway District No. 13 of the State of California abandoned work on the project of this District described in said Specifications on or about the 13th day of June, 1936, after performing part of the work described in the Plans and Specifications for said project, and left uncompleted the remainder of such work substantially as hereinafter described.

This Supplement to said Specifications describes the work remaining to be performed on the project

of the District. All of the said work remaining to be done is to be performed in accordance with the Plans and Specifications adopted by the Board of Directors of Joint Highway District No. 13 of the State of California on the 30th day of March, 1933, as amended and supplemented by amendments and supplements thereto adopted on January 9, 1934 and April 3, 1934, respectively, and with this supplement thereto and in strict compliance with all of the terms thereof; with the intent and purpose on the part of the Contractor and this District that the work shall be completed in every part, in every respect in accordance with the said Plans and Specifications.

The Contractor who undertakes the completion of said project shall do and perform and complete every part of the work described in said Plans and Specifications now remaining unperformed or partly completed, in order that the project shall be completed in each and every part, in accordance with said Plans and Specifications.

Prospective bidders shall examine the site of the work and all structures and parts of structures forming a part of the project and are required to satisfy themselves as to the conditions there existing, and the amount of work remaining to be done to complete the project.

The following description of the work is an approximation or estimate of the work remaining to be done and it is hereby declared and shall be

understood by all prospective bidders that the quantities set forth herein or on the Proposal Sheet, or Notice to Contractors, or in any Contract executed hereunder are approximate only, and are given as a basis for comparison of bids, and any Contractor whose proposal is accepted shall, by the terms of his contract with the District, guarantee to furnish all labor, materials, tools, and equipment necessary to the completion of all work on the project and to perform all work necessary or incidental to the construction of the portions of the project remaining to be completed as detailed, specified, and intended so as to furnish upon completion of said contract the completed project as required by the Plans and Specifications.

In order to provide a proper method for payment for the work of completing the project of the District which has been partially constructed as hereinabove mentioned, it has become necessary to provide in this supplement for a different method of payment for certain items of the work remaining to be performed, than was provided for respecting payment for said items in the Specifications heretofore adopted. Wherever, in this supplement, a basis for payment for any part of the work is provided which differs, conflicts, or is at variance with the basis of payment provided for in other parts of the Specifications, the basis for payment set forth in this supplement shall govern.

Joint Highway District No. 13 of the State of California reserves the right to increase or decrease

the amount of any part or portion of the work, or to omit such portions of the work as the District Engineer may deem it necessary or expedient to omit.

Wherever the words "Plans and Specifications" are herein used, the same shall be construed as meaning the Plans and Specifications for the Project of the District adopted by the Board of Directors of Joint Highway District No. 13 of the State of California on the 30th day of March, 1933, as amended and supplemented by the amendments and supplements thereto adopted January 9, 1934, and April 3, 1934, respectively, and by this supplement thereto.

PART II. TIME OF COMPLETION.

The entire work as described under Part III of this Supplement to the Specifications shall be completed within a period of two hundred fifty (250) calendar days from the date of execution of the contract therefor.

PART III. DESCRIPTION OF WORK REMAINING TO BE PERFORMED.

Section 1. Grading.

The work remaining to be done under "Grading" consists of the completion of the excavation and filling of the roadway prism to specified grade and cross section, the construction of drainage ditches, the removal of slides and disposing of

surplus material, and the performance of all necessary work as required by the Plans and Specifications.

It is estimated that there are approximately forty-five thousand (45,000) cubic yards of material remaining to be excavated.

Overhaul to be performed as specified is estimated to be approximately five hundred thousand (500,000) station yards.

Section 2. Excavation for Structures.

The work remaining to be done under "Excavation for Structures" consists of excavation for structures for which the excavations have not yet been made, or have not yet been completed, and the necessary backfilling thereof; also backfilling of all other structures at all points where such backfilling is not at present completed as required by the Plans and Specifications.

It is estimated that there are approximately seven hundred (700) cubic yards of excavation remaining.

Uncompleted backfilling is estimated to consist of approximately four hundred (400) cubic yards. No measurement will be made or separate payment allowed for backfilling. Full compensation for furnishing all materials, labor, tools, implements, equipment and supplies, and doing all work incidental to backfilling shall be considered as included in the price paid for "Excavation for Structures."

Section 3. Subgrade.

The work remaining to be done under "Subgrade" consists of the construction of the subgrade in all places designated as required by the Plans and Specifications where pavement has not yet been laid.

It is estimated that there are approximately seven hundred two thousand seven hundred (702,700) square feet of subgrade remaining to be constructed.

Section 4. Shoulders.

The work remaining to be done for completion of "Shoulders" consists of the construction of shoulders at locations designated in the Plans and Specifications where the same have not yet been constructed, and the completion of shoulders partly constructed, but not yet completed, as required by the Plans and Specifications.

It is estimated that there are approximately two hundred forty-five thousand (245,000) square feet of shoulders remaining to be constructed, and that there are approximately one thousand eight hundred (1,800) square feet of partially constructed shoulders to be completed by the Contractor as required by the Plans and Specifications.

Section 5. Reinforcing Steel.

The work remaining to be done consists of the furnishing and placing of "Reinforcing Steel" at all locations as required by the Plans and Specifications; and also includes the brushing and cleaning, straightening and otherwise adjusting to conform

to the Plans and Specifications of all reinforcing steel already placed, but about which concrete has not been placed, which has been exposed to the elements, and which has become rusted or coated with dirt or other foreign material, or bent or deformed, all to conform to the Plans and Specifications, and to provide reinforcing for the completed structure.

It is estimated that there are approximately eight hundred twenty-seven thousand (827,000) pounds of reinforcing steel remaining to be furnished and placed.

Section 6. Steel Structures.

The work remaining to be performed under "Steel Structures" consists of the furnishing and placing of the trusses, which support the louver frames, between the approach walls at the portals at each end of tunnel, and the furnishing and placing, in the tunnels, as required by the Plans and Specifications, of the structural steel which has not yet been installed.

It is estimated that there are approximately one hundred forty thousand (140,000) pounds of structural steel in the trusses.

It is estimated that there are approximately five hundred fifty-three thousand (553,000) pounds of structural steel to be furnished and placed in the tunnels.

Section 7. Concrete Structures

The work remaining to be done for completion of "Concrete Structures" consists of the construc-

tion, as required by the Plans and Specifications, of a retaining wall on the South side of the Service Roadway at the West Portal; coping structures at ends of Approach walls at East Portal, walls at Margarido Drive and Buena Vista place; parapet walls and rails on the Landvale Overhead structures, on Landvale Viaduct and walls, and on East Portal Approach walls.

It is estimated that there are approximately four hundred thirty (430) cubic yards of Class "A" concrete remaining to be placed in these structures. (Tunnel and building concrete remaining to be furnished and placed is described in Sections twenty-one (21) and twenty-two (22) of this Supplement.)

Section 8. Portland Cement Concrete Pavement

The work remaining to be done under "Portland Cement Concrete Pavement" consists of all of the eight inch (8") Portland cement concrete pavement at East and West Portals, as required by the Plans and Specifications.

It is estimated that there are approximately thirty-seven thousand seven hundred (37,700) square feet of eight inch (8") Portland cement concrete pavement remaining to be constructed. The six inch (6") Portland cement concrete pavement required by the Plans and Specifications has been completed.

Section 9. Penetration Oil Macadam Pavement

The work remaining to be done under "Penetra-

tion Oil Macadam Pavement" consists of the construction of all penetration oil macadam pavement as required by the Plans and Specifications which has not yet been constructed, and also includes repairs to previously completed penetration oil macadam pavement necessary to make the same conform to the requirements of the Plans and Specifications. Penetration oil macadam pavement has been constructed on the Tunnel Road, and on the westerly approach road from its intersection with Broadway northeasterly a distance of approximately eight hundred (800) lineal feet. Penetration oil macadam pavement which requires repairs is located in the vicinity of the Pedestrian Underpass on the westerly approach road, and on the Tunnel Road.

It is estimated that there are approximately six hundred sixty-five thousand (665,000) square feet of penetration oil macadam pavement remaining to be constructed as required by the Plans and Specifications.

It is estimated that there are approximately eight thousand eight hundred (8,800) square feet of penetration oil macadam pavement which must be repaired to complete the same as required by the Plans and Specifications.

Section 10. Concrete Curb and Gutter

The work remaining to be done under "Concrete Curb and Gutter" consists of the construction of the following:

Six inch (6″) curb in the vicinity of Margarido Drive, Buena Vista Place, Golden Gate Avenue, and Pacific Gas and Electric Substation.

Twelve inch (12″) curb in the vicinity of Sacramento Northern Railway retaining wall and in the vicinity of the East and West Tunnel portals.

Gutter in the vicinity of Margarido Drive, Buena Vista Place, Golden Gate Avenue, Sacramento Northern Railway retaining wall, and Pacific Gas and Electric Substation.

All of said curb and gutter shall be constructed as required by the Plans and Specifications.

It is estimated that there are approximately one thousand two hundred (1,200) lineal feet of six inch (6″) curb, approximately nine hundred forty-five (945) lineal feet of twelve inch (12″) curb, and approximately two thousand five hundred (2,500) square feet of gutter, remaining to be constructed.

Section 11. Cement Sidewalks

The work remaining to be done under "Cement Sidewalks" consists of the construction of cement sidewalks in the vicinity of Pedestrian Underpass, Margarido Drive, Buena Vista Place, Golden Gate Avenue, Sacramento Northern Railway Retaining Walls, and the East and West Tunnel Portals as required by the Plans and Specifications.

It is estimated that there are approximately nine thousand (9,000) square feet of cement sidewalks remaining to be constructed.

Section 12. Corrugated Metal Pipe Culverts

The work remaining to be done under "Corrugated Metal Pipe Culverts" consists of the furnishing and installing of eight inch (8") diameter corrugated metal pipe culverts for drainage purposes along the roadway approaches; twelve inch (12") diameter corrugated metal pipe culverts for drainage purposes in the vicinity of the East Portal of the Tunnel; and eighteen inch (18") diameter corrugated metal pipe culverts for drainage purposes on the West Approach roads, all as required by the Plans and Specifications.

Fill protectors remain to be constructed for drainage purposes on the West approach roads, as required by the Plans and Specifications.

It is estimated that there are approximately one thousand (1,000) lineal feet of eight-inch (8") diameter corrugated metal pipe culvert remaining to be furnished and installed, approximately one hundred fifty (150) lineal feet of twelve inch (12") diameter corrugated metal pipe culvert remaining to be furnished and installed, and approximately five hundred (500) lineal feet of eighteen inch (18") diameter corrugated metal pipe culvert remaining to be furnished and installed.

It is estimated that there are nine (9) fill protectors remaining to be furnished and installed.

Section 13. Reinforced Concrete Pipe Culvert

The work remaining to be done under "Reinforced Concrete Pipe Culvert" consists of the furnishing and installing of approximately one hundred ninety (190) lineal feet of twenty-four inch

(24") diameter reinforced concrete pipe culvert, extra strength (X type), as provided in the Plans and Specifications, for drainage purposes in the vicinity of the West Portal.

Section 14. Vitrified Pipe Sewers

The work remaining to be done under "Vitrified Pipe Sewers" consists of the construction, completion and repair of manholes with standard tops, manholes with inlet tops, manholes with grating tops, storm water inlets and lamp holes.

It is estimated that the following manholes are to be furnished and installed; one (1) manhole with standard top, one (1) manhole with inlet top, three (3) manholes with grating tops, two (2) storm water inlets, Type "B," three (3) storm water inlets, Type "C"; one (1) lamphole is to be repaired.

These items are to be installed in the vicinity of the East and West Tunnel portals and on the approach roadways, all as required by the Plans and Specifications.

All vitrified pipe required to be furnished and installed has been furnished and installed except that required in the Tunnel, and Ventilation Buildings.

Section 15. Underdrains

The work remaining to be done under "Underdrains" consists of furnishing and installing eight inch (8") perforated corrugated metal pipe underdrains in the vicinity of the East and West Tunnel portals and along the West Approach roadways for drainage purposes, as required by the Plans and Specifications.

It is estimated that there are approximately two thousand one hundred (2,100) lineal feet of underdrains remaining to be furnished and installed.

Section 16. Piping

The work remaining to be done under "Piping" consists of the furnishing and installing of all of the six inch (6") diameter cast iron pipe together with all fittings and accessories, as required by the Plans and Specifications, outside the Tunnels and Ventilation Buildings. Piping within the Tunnels and Ventilation Buildings is provided for in Sections twenty-one (21) and twenty-two (22) of this Supplement.

It is estimated that there are approximately two thousand twenty (2,020) lineal feet of piping, cast iron, six inch (6") diameter, remaining to be furnished and installed, outside the Tunnels and Ventilation Buildings.

Section 17. Guard Rails and Pipe Hand Rails

The work remaining to be done under "Guard Rails and Pipe Hand Rails" consists of the construction of all guard rails required by the Plans and Specifications but not yet constructed. Seven hundred (700) lineal feet of guard rails have been constructed along the Tunnel Road.

It is estimated that approximately twelve thousand (12,000) lineal feet of guard rails required by the Plans and Specifications remain to be constructed.

Pipe hand rails remain to be constructed, as required by the Plans and Specifications, on walls, in the vicinity of Golden Gate Avenue, Temescal Culvert, Pacific Gas and Electric Substation, and underpasses.

It is estimated that approximately six hundred twenty (620) lineal feet of pipe hand rail remain to be constructed.

Pipe hand rails partially completed shall be finished and completed as required by the Plans and Specifications. All pipe hand rails already in place which have been damaged shall be repaired, or new material supplied to complete the same, all as required by the Plans and Specifications.

Section 18. Rip Rap

The work remaining to be done under "Rip Rap" consists of the construction of rip rap structures in the vicinity of the Landvale Overhead structure as required by the Plans and Specifications.

It is estimated that there are approximately ninety (90) cubic yards of rip rap remaining to be constructed.

Section 19. Paint and Painting

The work remaining to be done under "Paint and Painting" consists of:

(a) The painting, as required by the Plans and Specifications, of all structural steel not yet installed;

(b) The completion of the painting, as required by the Plans and Specifications, of all struc-

tural steel which has not yet received the requisite number of coats;

(c) The repainting, to the standard required by the Plans and Specifications, of all surfaces heretofore painted which have been damaged;

(d) The painting, as required by the Plans and Specifications, of all timber guard rail which has not yet been constructed; and completion of the painting of constructed timber guard rail which has not yet received the requisite number of coats, or on which paint coats have become damaged.

The Contractor shall examine carefully and thoroughly all painted or partially painted structures, and shall satisfy himself as to conditions there existing and the amount of work remaining to be done in connection with additional coats of paint and the repainting of damaged surfaces so that same shall conform to the requirements of the Plans and Specifications.

The decision of the Engineer as to the locations and surfaces which may require additional coats of paint or repainting of damaged surfaces at any time during the progress of the work, shall be final and no extra payment will be allowed in the event the Contractor shall claim that the amount of repainting, or completion of partially painted surfaces required by the District Engineer does not correspond with that estimated by the Contractor.

Section 20. Metal Cribbing

The work remaining to be done under "Metal Cribbing" consists of furnishing and placing of the metal cribbing in the vicinity of the Landvale Viaduct as required by the Plans and Specifications.

No metal cribbing has been furnished or installed. It is estimated that there are approximately forty-six thousand (46,000) pounds of metal cribbing to be furnished and installed.

Section 21. Tunnel Construction

"Tunnel Construction" covers the construction of tunnels complete, as required by the Plans and Specifications. Some work has been performed on every portion of the tunnels, but no portion is complete. A general description of the approximate amount of the work which remains to be done to complete the "Tunnel Construction" is as follows: (for convenience, in addition to the description of the approximate lineal feet of items of work remaining to be done, the description by Engineer's Stations of approximate location of items is also given.)

1. Upgrade or South Tunnel:

(a) Excavation: Four hundred forty-six (446) lineal feet, (Stations 135+79 to 140+25), of excavation remains to be performed. Two (2) drifts have been excavated through this length. The necessary maintenance and support of these drifts to pre-

vent cave-in shall be performed by the Contractor during the progress of the excavation of this Tunnel.

(b) Concrete Arch Ring: Five hundred eighty-two (582) lineal feet of concrete arch ring remains to be constructed, (Stations 134+28 to 140+10). Footings for concrete arch ring have been constructed ahead of the full ring a distance of one hundred twenty-eight (128) lineal feet, (Stations 134+28 to 135+56).

(c) Grouting: Grouting has been completed a distance of one thousand forty-seven (1,047) lineal feet, (Stations 111+53 to 122+00), from the West end of the concrete arch ring. There remains one thousand three hundred sixteen (1,316) lineal feet, (Stations 122+00 to 134+28 and 140+10 to 140+98), of the concrete arch ring now installed around which groutings is to be placed, as required by the Plans and Specifications. Grouting, as required by the Plans and Specifications, shall be placed around all portions of the concrete arch ring hereafter constructed.

(d) Ceilings and Partitions: The ceiling or partition between the fresh air duct and the exhaust air duct has been partially constructed a distance of eight hundred eighty-one (881) lineal feet from the West end of the concrete arch ring, (Stations 111+53 to 120+34). The ceiling or partition between the roadway portion of the Tunnel and the exhaust air duct has been partially constructed a distance of eight hundred eighty-four (884) lineal

feet, (Stations 111+53 to 120+37), from the West end of the concrete arch ring.

Patching, finishing and painting of the surfaces of the concrete on the partially constructed portions of the ceilings and partitions remain to be done.

Gunite partitions and other partition details, and air duct bulkheads, remain to be constructed in connection with these partially constructed ceilings and partitions. Exhaust port openings have been left in partially constructed ceilings. Slides, deflectors and other details required by the Plans and Specifications remain to be installed.

Completion of these partially constructed portions and the construction of ceilings and partitions in all of the remainder of the Tunnel, with all accessories, remain to be done as required by the Plans and Specifications.

(e) Side Walls and Fresh Air Flues: Side walls and fresh air flues have been partially constructed and installed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+53 to 120+37), from the Westerly end of the concrete arch ring; these walls require surface finishing, patching and painting, and flues require cleaning out, and setting and adjustment of nozzle openings, as required by the Plans and Specifications.

Finishing of partially completed walls and installation of flues and construction of flues and side walls in all remaining portions of the tunnels, as required by the Plans and Specifications, remain to be done.

(f) Curbs and Sidewalks: No part of the curbs and sidewalks required for the completion of this Tunnel has been constructed, and all remains to be done, as required by the Plans and Specifications.

(g) Roadway Pavement: No portion of the subgrade or roadway pavement required by the Plans and Specifications has been constructed, and all remains to be done.

(h) Drainage Structures and Conduits: No portions of the drainage structures and conduits required by the Plans and Specifications have been constructed, except drains installed back of and through the arch ring in the portion of the Tunnel in which the concrete arch ring and footings have been constructed; the Contractor will be required to furnish and construct all remaining portions of drainage structures and conduits, as required by the Plans and Specifications, in the portions of this Tunnel in which the concrete arch ring and footings have been constructed. In all portions of this Tunnel in which the concrete arch ring and footings have not been placed, the complete drainage structures and conduits, as required by the Plans and Specifications, shall be furnished, constructed and installed by the Contractor.

(i) Water Pipes: No part of the water pipes required to be constructed in this Tunnel has been constructed. The Contractor will be required to furnish and install all water pipes, cocks, plugs, adaptors and other necessary accessories, as re-

quired by the Plans and Specifications, in the entire length of this Tunnel.

2. Downgrade or North Tunnel:

(a) Excavation: Nine hundred sixty-two (962) lineal feet, (Stations 129+86 to 139+48), of excavation remains to be performed. One (1) drift has been excavated through on the South side; on the North side of this Tunnel a drift has been excavated a distance of approximately seven hundred eighty-two (782) lineal feet westerly from the East Portal, and a distance of approximately one hundred fifty-nine (159) lineal feet easterly from the face of the main excavation; the distance remaining unexcavated between the ends of this drift is approximately ninety-nine (99) lineal feet; the necessary maintenance and support of these drifts to prevent cave-in shall be performed by the Contractor during the progress of the excavation of this Tunnel.

(b) Concrete Arch Ring: One thousand eighty-nine (1,089) lineal feet of concrete arch ring remains to be constructed (Stations 128+50 to 139+39). Footings for concrete arch ring have been constructed ahead of the full ring a distance of one hundred and twenty-one (121) lineal feet, (Stations 128+50 to 129+71).

(c) Grouting: Grouting has been completed a distance of one thousand one hundred and seven (1,107) lineal feet, (Stations 111+43 to 122+50), from the West end of the concrete arch ring. There

remains six hundred seventy-nine (679) lineal feet, (Stations 122+50 to 128+50 and 139+39 to 140+18), of the concrete arch ring now installed around which grouting is to be placed, as required by the Plans and Specifications. Grouting, as required by the Plans and Specifications, shall be placed around all portions of the concrete arch ring hereafter constructed.

(d) Ceilings and Partitions: The ceiling or partition between the fresh air duct and the exhaust air duct has been partially constructed a distance of eight hundred seventy-three (873) lineal feet from the West end of the concrete arch ring, (Stations 111+43 to 120+16). The ceiling or partition between the roadway portion of the Tunnel and the exhaust air duct has been partially constructed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+43 to 120+27), from the West end of the concrete arch ring.

Patching, finishing and painting of the surfaces of the concrete on the partially constructed portions of ceilings and partitions remain to be done.

Gunite partitions and other partition details, and air duct bulkheads, remain to be constructed in connection with these partially constructed ceilings and partitions. Exhaust port openings have been left in partially constructed ceilings. Slides, deflectors and other details required by the Plans and Specifications remain to be installed.

Completion of these partially constructed portions and the construction of ceilings and parti-

tions in all of the remainder of the Tunnel, with all accessories, remains to be done, as required by the Plans and Specifications.

(e) Side Walls and Fresh Air Flues: Side walls and fresh air flues have been partially constructed and installed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+43 to 120+27), from the Westerly end of the concrete arch ring; these walls require surface finishing, patching and painting; and flues require cleaning out, and setting and adjustment of nozzle openings, as required by the Plans and Specifications.

Finishing of partially completed walls and installation of flues and construction of flues and side walls in all remaining portions of the Tunnels, as required by the Plans and Specifications, remain to be done.

(f) Curbs and Sidewalks: No part of the curbs and sidewalks required for the completion of this Tunnel has been constructed, and all remains to be done, as required by the Plans and Specifications.

(g) Roadway Pavement: No portion of the subgrade or roadway pavement required by the Plans and Specifications has been constructed, and all remains to be done.

(h) Drainage Structures and Conduits: No portions of the drainage structures and conduits required by the Plans and Specifications have been constructed, except drains installed back of and through the arch ring in the portion of the Tunnel

in which the concrete arch ring and footings have been constructed; the Contractor will be required to furnish and construct all remaining portions of drainage structures and conduits, as required by the Plans and Specifications, in the portions of this Tunnel in which the concrete arch ring and footings have been constructed. In all portions of this Tunnel in which the concrete arch ring and footings have not been placed, the complete drainage structures and conduits, as required by the Plans and Specifications, shall be furnished, constructed and installed by the Contractor.

(i) Water Pipes: No part of the water pipes required to be constructed in this Tunnel have been constructed. The Contractor will be required to furnish and install all water pipes, cocks, plugs, adaptors and other necessary accessories, as required by the Plans and Specifications, in the entire length of this Tunnel.

3. Cross Adits:

The two (2) most Westerly "Cross Adits" of the three (3) required by the Plans and Specifications have been completed. Excavation for the third cross adit has been started from the South or Upgrade Tunnel and the excavation has proceeded approximately fifteen (15) lineal feet toward the North or Downgrade Tunnel. The Contractor is required to complete this adit as required by the Plans and Specifications.

4. Completion of Tunnels:

The Contractor shall complete the Tunnels in every detail, as required by the Plans and Specifications. The general description of work remaining to be constructed and completed, as hereinabove set forth, is approximately only and, in particular, does not include a complete statement of the repairs and re-finishing that will be required to finish the work as left in place by the Contractor who abandoned the work on this project. The Contractor shall perform all work, furnish all labor, materials, tools and equipment necessary and incidental to the repair and re-finishing of work now in place, and the execution of all additional work required for the completion of the "Tunnel Construction" as specified. The omission herein of specific mention of any detail, item, or quantity shall not relieve the Contractor of his responsibility and obligation to perform all labor and furnish all materials of each and every kind necessary and to construct, complete, and finish these Tunnels in every detail as required by the Plans and Specifications; all of this is to be done without other payment therefor than the price bid for "Tunnel Construction."

5. Payment:

The price bid and the price to be paid by the District, to complete "Tunnel Construction" shall constitute full compensation to the Contractor for the completion of "Tunnel Construction" including cross adits, as required by the Plans and Specifica-

tions, except that "Reinforcing Steel" shall be paid for per pound in place, as provided in the Specifications.

Section 22. Ventilation Buildings

The "Ventilation Buildings" required by the Plans and Specifications to be constructed at the Easterly and Westerly ends of the Tunnel are partially constructed.

The Contractor shall complete the Ventilation Buildings in every detail as required by the Plans and Specifications. The Contractor shall perform all work, furnish all labor, materials, tools and equipment necessary and incidental to the repair and refinishing of work now in place, and required for the completion of the construction of these buildings in accordance with the Plans and Specifications.

The roofing over the fan room of the West ventilation building has been damaged and was rejected by the District prior to the abandonment of the work by the former Contractor. The Contractor who completes the work shall completely reconstruct this roofing, damaged roofing to be removed and new roofing to be furnished and constructed in accordance with the Plans and Specifications. The Contractor shall patch and repair defective or damaged wall surfaces and all other portions of said structures.

The foregoing general description of the work remaining to be done, constructed and completed,

as herinabove set forth, is approximate only and, in particular, does not include a complete statement of the repairs and refinishing that will be required to complete the structures as left in place by the Contractor who abandoned the work on this project. The omission herein of specific mention of any detail, item or quantity shall not relieve the Contractor of his responsibility and obligation to provide all labor, tools, equipment, and materials of each and every kind necessary to construct, complete and finish the Ventilation Buildings in every detail as required by the Plans and Specifications. All of this is to be done without other payment therefor than the price bid for the completion of the Ventilation Buildings.

Section 23. Ventilation Equipment

The "Ventilation Equipment" required by the Plans and Specifications to be furnished and installed in the Ventilation Buildings at the Easterly and Westerly ends of the Tunnel has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the ventilation equipment in both of the said buildings in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the ventilation equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination

of the ventilation equipment now on the project and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories remaining to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the ventilation equipment now in place, and do all things necessary in order that, at the completion of the Contract, the ventilation equipment shall be complete in every respect, and shall meet all of the requirements and tests set forth in the Plans and Specifications.

Section 24. Mechanical Equipment

The "Mechanical Equipment" required by the Plans and Specifications to be furnished and installed on the project of the District has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the mechanical equipment on the project in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the mechanical equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the mechanical equipment now on the project,

and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories required to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the mechanical equipment now in place, and do all things necessary in order that, at the completion of the Contract, the mechanical equipment shall be complete in every respect, and shall meet all of the requirements and tests set forth in the Plans and Specifications.

Section 25. Electrical Equipment

The "Electrical Equipment" required by the Plans and Specifications to be furnished and installed on the project of the District has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the electrical equipment on the project in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the electrical equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the electrical equipment now on the project,

and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories required to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the electrical equipment now in place, and do all things necessary in order that, at the completion of the Contract, the electrical equipment shall be complete in every respect, and shall meet all of the requirements and tests set forth in the Plans and Specifications.

Section 26. Carbon Monoxide Detectors and Recorders

The "Carbon Monoxide Detectors and Recorders" shall be furnished and installed, as required by the Plans and Specifications.

No part of this equipment has been furnished or installed.

Section 27. Completion Painting, Repairing Damage, Repairing Imperfect Work and Cleaning Up

The Contractor shall perform all work, furnish all labor, tools, material and equipment necessary for finishing and completing all parts of the work in every detail, as required by the Plans and Specifications, in a workmanlike manner.

Without limiting the generality of the foregoing, and as a general description of the work required

to be done in repairing damaged and imperfect work, the Contractor shall perform all work and furnish all labor, tools, material and equipment necessary to repair and complete the partially constructed shoulders hereinbefore mentioned; to brush, clean, straighten and otherwise adjust exposed reinforcing steel as hereinbefore mentioned; to repair the lamphole hereinbefore mentioned; to complete partially completed pipe hand rails and repair damaged pipe hand rails hereinbefore mentioned; to complete the paint and painting hereinbefore mentioned; and to repair and complete any other work which is imperfect or has been damaged in any manner whatsoever; all to be performed in a manner and with the purpose that all parts of the work shall be completed in accordance with the requirements of the Plans and Specifications.

The Contractor shall also clean out all culverts and drainage channels which have become blocked or otherwise obstructed in any manner during previous construction operations or during Contractor's operations, and shall maintain and keep the same clear at all times during construction as a part of the work to be performed under the Contract; the Contractor shall also, as a part of the work to be performed under the Contract remove all debris, construction material, construction buildings and construction equipment, whether placed there by the Contractor, or by the contractor who heretofore abandoned work on the project, from the project at the close of construction in order that the project shall be left in a clean, sightly and finished

condition throughout the entire area thereof. The Contractor shall also remove all of the debris, construction material, construction buildings and construction equipment from all areas adjacent to the project which have been occupied or used by the Contractor, or by the contractor who heretofore abandoned work on the project, during construction and leave said areas in a clean, sightly condition.

The price bid for "Completing Painting, Repairing Damage, Repairing Imperfect Work and Cleaning Up" shall constitute full compensation to the Contractor for the furnishing of all labor, tools, material and equipment and the performance of all work necessary or incidental to the completion of the above described work.

Section 28. Conditions Respecting Removal of Construction Equipment, Construction Plant, and Personal Property Now Located on the Right of Way of the District

Certain construction equipment, construction plant, and other personal property owned by or in the possession of Six Companies of California, a corporation, is now located on the right of way of the District, or adjacent thereto.

Prospective bidders are hereby notified that under a guaranteed written agreement with the District, Six Companies of California will remove all said construction equipment, construction plant, and personal property from the right of way of the District, at its own cost and expense within twenty-

one (21) calendar days from and after the date fixed by the District as the day upon which bids will be received for the completion of the project, or within ten (10) calendar days from and after the date of execution of a Contract for completion of the project of the District, depending on which time gives Six Companies of California the greatest length of time to remove the same, if the Contractor to whom a contract is awarded by the District does not effect arrangements satisfactory to himself and said Six Companies of California, with said Company, for the use of said construction equipment, construction plant and other personal property, in the performance of the work.

The foregoing notification is not intended as, nor shall it be construed as a provision of this Supplement requiring or recommending that Prospective bidders effect an arrangement with said Six Companies of California for the use of said construction equipment, construction plant, and other personal property, and the same is incorporated herein for the sole purpose of advising all prospective bidders of the fact that said construction equipment, construction plant, and other personal property, will be removed from the right of way of the District, without cost to the Contractor hereunder, if, for any reason, such Contractor does not desire to use the same.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. X-3. Filed June 1, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT X-11.

Joint Highway District No. 13 of the State of California.

SUPPLEMENT TO SPECIFICATIONS.

For Construction of Project of the District, Including Highway, Highway Tunnel and Approaches with Appurtenant Structures, Adopted March 30, 1933, as Amended and Supplemented by Amendments and Supplements to Said Specifications Adopted January 9, 1934 and April 3, 1934, Respectively.

WALLACE B. BOGGS,
District Engineer

DIRECTORS

Thomas E. Caldecott.....President
Harry M. Stow.....Secretary
Henry L. Hinman.....Treasurer

LEGAL

Archibald B. Tinning.....Attorney

Adopted September 23, 1936.

Specification No.....
Set No.....

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

Office of
WALLACE B. BOGGS
District Engineer
1448 Webster Street,
Oakland, California

Adopted September 23rd, 1936.

Supplement to Specifications for Construction of Project of the District, Including Highway, Highway Tunnel and Approaches with Appurtenant Structures, Adopted March 30, 1933, as Amended and Supplemented by Amendments and Supplements to Said Specifications Adopted January 9, 1934 and April 3, 1934, Respectively.

PART I—STATEMENT OF CONDITIONS.

Section 1—General Conditions.

A contractor under contract with Joint Highway District No. 13 of the State of California abandoned work on the project of this District described in said Specifications on or about the 13th day of June, 1936, after performing part of the work described in the Plans and Specifications for said project, and left uncompleted the remainder of such work substantially as hereinafter described.

This Supplement to said Specifications describes the work remaining to be performed on the project of the District. All of the said work remaining to

be done is to be performed in accordance with the Plans and Specifications adopted by the Board of Directors of Joint Highway District No. 13 of the State of California on the 30th day of March, 1933, as amended and supplemented by amendments and supplements thereto adopted on January 9, 1934 and April 3, 1934, respectively, and with this Supplement thereto, and in strict compliance with all of the terms thereof; with the intent and purpose that the work shall be completed in every part, in every respect as required by the said Plans and Specifications.

In order to provide a method of procedure for completing the project of the District, which has been partially constructed as hereinbefore mentioned, the work remaining to be performed to complete the project has been subdivided, and the District will advertise for the tender of proposals from contractors to enter into contracts wherein the Contractor will contract with the District to perform all work, furnish all labor, materials, tools, and equipment necessary and incidental for finishing and completing the portions of the project included within each such subdivision, at such time or times as are hereafter determined upon by the District, under schedules hereinafter set forth.

The Contractor who undertakes the completion of any portion of the project included in any schedule for said portion of the project as hereinafter set forth, shall do and perform and complete every portion of the work set forth in said schedule now re-

maining unperformed or partly completed, in every respect in accordance with the Plans and Specifications.

Prospective bidders, under any schedule for any portion of the project, shall examine the site of the work and all structures and parts of structures to which said schedule pertains, and are required to satisfy themselves as to the conditions there existing and the amount of work remaining to be done to complete the portion of said project included within said schedule.

The description of the work hereinafter set forth is an approximation or estimate of the work remaining to be done. It is hereby declared and shall be understood by all prospective bidders that the quantities set forth herein or on any Proposal Sheet, or Notice to Contractors, or in any Contract executed hereunder for any schedule, are approximate only, and are given as a basis for comparison of bids. Any Contractor whose proposal on any schedule is accepted shall, by the terms of his Contract with the District, guarantee to furnish all labor, materials, tools and equipment and to perform all work necessary or incidental to the construction and completion of the portions of the project remaining to be completed to which said schedule applies, as detailed, specified and intended, so as to furnish upon completion of said contract the completed portion of the project included in said schedule as required by the Plans and Specifications.

Joint Highway District No. 13 of the State of California reserves the right to increase or decrease the amount of any part or portion of the work, or to omit such portions of the work as the District Engineer may deem it necessary or expedient to omit.

Wherever in this Supplement a basis for payment for any part of the work is provided which differs, conflicts or is at variance with the basis of payment provided for in other parts of the Specifications, the basis for payment set forth in this Supplement shall govern.

Wherever the words "Plans", "Specifications", "Plans and Specifications" are herein used, the same shall be construed as meaning the Plans and Specifications for the project of the District adopted by the Board of Directors of Joint Highway District No. 13 of the State of California on the 30th day of March, 1933, as amended and supplemented by the amendments and supplements thereto adopted January 9, 1934, and April 3, 1934, respectively, and by this Supplement thereto.

Part II—Description of Subdivisions of Project—Schedules for Construction.

The following is a description of the schedules into which the work remaining to be performed, and the material and equipment remaining to be furnished and supplied, to complete the project of the District, which has been partially constructed as hereinbefore mentioned, has been subdivided; the

District will advertise for separate proposals from contractors to perform all work, furnish all labor, tools, material and equipment necessary for, and incidental to, completing all parts of the work, included in each separate schedule as follows:

Schedule A—Completion of Excavation of Tunnels and Cross Adit and Completion of Construction of Concrete Arch Ring Lining of Tunnels and Cross Adit.

Under this schedule the Contractor shall complete the excavation of the tunnels and cross adit, and the construction of the concrete arch ring tunnel linings, and cross adit lining, together with the grouting around the portions of the arch ring tunnel linings which are to be constructed under this schedule, and shall furnish and install dowels and hanger connections, drainage structures and conduits required to be embedded in the concrete arch ring tunnel linings.

"Reinforcing Steel" required in the construction of the concrete arch ring tunnel linings and cross adit lining shall be furnished and installed by the Contractor under this schedule.

Schedule B—Completion of Grouting in Tunnels Around Concrete Lining Now Installed.

Under this schedule the Contractor shall complete the grouting, as required by the Plans and Specifications, around the concrete arch ring tunnel linings now installed in each tunnel, where grouting has not been completed. The portions of the concrete arch

ring tunnel linings around which the Contractor under this schedule will be required to place grouting are set forth in Section 21 of Part IV hereof.

Grouting will be measured and paid for under this schedule by the barrel of cement used in such grouting, and the price to be paid for grouting under this schedule shall constitute full compensation to the Contractor to whom a contract is awarded under this schedule, for furnishing of all labor and material, tools and equipment necessary and incidental to the performance of the work included within this schedule.

Schedule C—Completion of Tunnel Construction Remaining to Be Completed After Concrete Arch Ring Tunnel Lining Is Constructed and Grouting Is Completed.

Under this schedule the Contractor shall complete the construction of ceilings and partitions, including furnishing and installing of structural steel, sidewalls and fresh air flues, curbs and sidewalks, roadway pavement, drainage structures and conduits, water pipes and all other portions of the work necessary for the completion of the partially completed tunnels throughout their entire length as required by the Plans and Specifications under "Tunnel Construction", excepting the portions thereof described in Schedule A and Schedule B hereof.

"Reinforcing Steel" required in the construction of the portions of the tunnels described in this schedule shall be furnished and installed by the Contractor under this schedule.

Portions of "Electrical Equipment" within the limits of the tunnel structures which are required to be embedded in the concrete or are required to be furnished and installed either prior to or concurrently with the placing of concrete, shall be furnished and installed by the Contractor under this schedule. Said portions of "Electrical Equipment" consist of conduits, outlet boxes, luminaire bodies, transformer cabinets and pull boxes, fire alarm and police telephone boxes, and accessories thereto, conduit crossovers, including drilling therefor, all as required by the Plans and Specifications.

Schedule D—Completion of Ventilation Buildings.

Under this schedule the Contractor shall complete the Ventilation Buildings as required by the Plans and Specifications.

Portions of "Electrical Equipment" within the limits of the ventilation building structures, which are required to be embedded in the concrete or are required to be furnished and installed either prior to or concurrently with the placing of concrete shall be furnished and installed by the Contractor under this schedule. Said portions of "Electrical Equipment" consist of conduits, outlet boxes, pull boxes, luminaire bodies, fire alarm and police telephone boxes, and accessories thereto, all as required by the Plans and Specifications.

Schedule E—Completion of Ventilation Equipment, Mechanical Equipment, and Electrical Equipment.

Under this schedule the Contractor shall complete the furnishing and installing of Ventilation Equipment, Mechanical Equipment, and Electrical Equipment, as required by the Plans and Specifications, excepting such portions of Electrical Equipment as are required to be furnished and installed under Schedule C and Schedule D hereof.

The work included in this Schedule E has been further subdivided for the purpose of obtaining alternate proposals for furnishing and installing the equipment included in each such subdivision thereof. The said subdivision of Schedule E is as follows:

Subdivision 1—Schedule E—Completion of Ventilation Equipment.

Under this subdivision of this schedule, the Contractor shall complete the furnishing and installing of the Ventilation Equipment as required by the Plans and Specifications.

Subdivision 2—Schedule E—Completion of Mechanical Equipment.

Under this subdivision of this schedule, the Contractor shall complete the furnishing and installing of the Mechanical Equipment as required by the Plans and Specifications.

Subdivision 3—Schedule E—Completion of Electrical equipment.

Under this subdivision of this schedule, the Contractor shall complete the furnishing and installing of the Electrical Equipment as required by the Plans and Specifications, excepting such portions of Electrical Equipment as are required to be installed under Schedule C and Schedule D hereof.

Prospective bidders under Schedule E will be required to bid upon Schedule E as a whole under an alternate proposal No. 1, and upon each and all of the hereinbefore set forth subdivisions of Schedule E as an alternate proposal No. 2.

The District reserves the right to accept or reject any or all proposals submitted under this Schedule E; to accept one or more subdivisions of alternate proposal No. 2, and to reject other subdivisions of alternate proposal No. 2, as the interest of the District may require.

Schedule F—Carbon Monoxide Detectors and Recorders.

Under this schedule the Contractor shall furnish and install Carbon Monoxide Detectors and Recorders complete as required by the Plans and Specifications.

Schedule G—Highway Construction and Appurtenant Structures.

Under this schedule the Contractor shall complete the highway approach roads and the structures thereon, outside the limits of the tunnels and ven-

tilation buildings, including all Grading, Overhaul, Excavation for Structures, Subgrade, Shoulders, Reinforcing Steel, Concrete Structures, Portland Cement Concrete Pavement, Penetration Oil Macadam Pavement, Concrete Curb and Gutter, Cement Sidewalks, Corrugated Metal Pipe Culverts, Fill Protectors, Reinforced Concrete Pipe Culvert, Vitrified Pipe Sewers, Underdrains, Piping, Guard Rails and Pipe Hand Rails, Rip Rap, Paint and Painting, Metal Cribbing, Completing Painting, Repairing Damage and Imperfect Work and Drainage, all in accordance with the Plans and Specifications.

Schedule H—Steel Structures.

Under this schedule the Contractor shall furnish and place the structural steel trusses, purlins, and connections which support the louver frames between the approach walls at the portals at each end of the tunnels, all as required by the Plans and Specifications.

Other Contracts—Cooperation Between Contractors.

The District will award contracts for the various divisions of the work described in the schedules hereinbefore set forth, and each Contractor to whom a contract is awarded by the District for the performance of the work to be performed, under any and all of said schedules, shall fully cooperate with all other Contractors on the project, and carefully fit his own work to that provided for under other contracts. No contractor shall commit, nor permit, any act which will interfere with the performance of the work of any other Contractor.

Cleanup.

Each Contractor performing work on the project of the District under any schedule or schedules hereof, shall before acceptance of the work by the District, remove from the site of the work and any and all areas adjacent thereto, occupied or used by him, all debris, excess construction material, falsework, temporary structures created, placed, used or constructed by him, in connection with the performance of his contract, so as to leave the project in a clean, orderly and sightly condition.

Part III—Time of Completion, Extensions of Time, Damages for Delay.

(a) Time of Completion.

The entire work described in each of the various schedules hereinbefore mentioned shall be completed within periods as follows:

Schedule A—One hundred eighty (180) calendar days from the date of execution of the contract therefor.

Schedule B—Sixty (60) calendar days from the date of execution of the contract therefor.

Schedule C—Two hundred (200) calendar days from the date of execution of the contract therefor.

Schedule D—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Schedule E—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Subdivision 1—Schedule E—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Subdivision 2—Schedule E—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Subdivision 3—Schedule E—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Schedule F—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Schedule G—Two hundred (200) calendar days from the date of execution of the contract therefor.

Schedule H—One hundred (100) calendar days from the date of execution of the contract therefor.

(b) Extensions of Time.

The following supplementary provisions to the Specifications relative to extension of time are inserted herein to provide a means for extending the time of completion under contracts awarded for work to be performed under the various schedules into which the work of completing the project has been subdivided, and the same do not modify, rescind, vacate or repeal any other provision of the Specifications, relating to extensions of time.

The time during which any Contractor under any contract awarded under any schedule of these Specifications, is delayed by reason of the failure of any other Contractor to complete work under another

contract, which work must be completed to enable the first mentioned Contractor to proceed with the work required to be performed under his contract shall be added to the period fixed in his contract as the period within which the work thereunder shall be completed, provided that the Board of Directors approve the written application of such first mentioned Contractor for such extension, which application must be made to the Board of Directors by such first mentioned Contractor at the time such delay first occurs, and before the expiration of the time of completion fixed in his contract, and thereafter the time for completion under such contract shall be extended for the period fixed in the resolution of the Board of Directors granting the application for such extension; provided that no Contractor shall be entitled to an extension of time for completing the work required to be performed under his contract, if at the time such delay first occurs by reason of the failure of any other Contractor to complete work, there remain portions of the work to be performed by the first mentioned Contractor upon which, in the judgment of the District Engineer, the first mentioned Contractor may proceed, without undue interference by reason of delay in the performance of the work of such other Contractor or Contractors.

(c) Damages for Delay.

All parties to all contracts awarded for the work to be performed, described in said schedules, shall

and do hereby expressly stipulate and agree that time is the essence of each of said contracts. In case the work is not completed within the time specified in any contract for any schedule hereof, or within such extensions of the contract time as may be allowed under these specifications, it is distinctly understood and agreed by each such Contractor that the Contractor shall pay the District as agreed and liquidated damages, and not as a penalty, the amounts hereinafter set forth for the various schedules, for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work required to be performed under each such contract; each of said sums pertaining to each contract awarded under each of said schedules, being hereby specifically agreed upon by each such Contractor, as a measure of the damage to the District by reason of delay in the completion of the work under each such contract, it being expressly stipulated and agreed by each such Contractor that it would be impracticable to estimate and ascertain the actual damages sustained by the District under such circumstances, and each such Contractor hereby agrees and consents that the amount of liquidated damages so fixed, shall be deducted and retained by the District from any money then due, or thereafter to become due such Contractor.

The stipulated amounts of agreed and liquidated

damages to be inserted as a provision in each contract to be awarded for the portion of the work of the completion of the project of the District, and included in each of said schedules, are as follows:

Schedule A—Five Hundred Dollars ($500) per day.

Schedule B—Fifty Dollars ($50) per day.

Schedule C—Five Hundred Dollars ($500) per day.

Schedule D—One Hundred Dollars ($100) per day.

Schedule E—One Hundred Dollars ($100) per day.

Subdivision 1—Schedule E—One Hundred Dollars ($100) per day.

Subdivision 2—Schedule E—One Hundred Dollars ($100) per day.

Subdivision 3—Schedule E—One Hundred Dollars ($100) per day.

Schedule F—Fifty Dollars ($50) per day.

Schedule G—Two Hundred Fifty Dollars ($250) per day.

Schedule H—Fifty Dollars ($50) per day.

Part IV—Description of Work Remaining to Be Performed.

Section 1—Grading.

The work remaining to be done under "Grading" consists of the completion of the excavation and filling of the roadway prism to specified grade and

cross section, the construction of drainage ditches, the removal of slides and disposing of surplus material, and the performance of all necessary work as required by the Plans and Specifications.

It is estimated that there are approximately forty-five thousand (45,000) cubic yards of material remaining to be excavated.

Overhaul to be performed as specified is estimated to be approximately five hundred thousand (500,000) station yards.

Section 2—Excavation for Structures.

The work remaining to be done under "Excavation for Structures" consists of excavation for structures for which the excavations have not yet been made, or have not yet been completed, and the necessary backfilling thereof; also backfilling of all other structures at all points where such backfilling is not at present completed as required by the Plans and Specifications.

It is estimated that there are approximately seven hundred (700) cubic yards of excavation remaining.

Uncompleted backfilling is estimated to consist of approximately four hundred (400) cubic yards. No measurement will be made or separate payment allowed for backfilling. Full compensation for furnishing all materials, labor, tools, implements, equipment and supplies, and doing all work incidental to backfilling shall be considered as included in the price paid for "Excavation for Structures".

Section 3—Subgrade.

The work remaining to be done under "Subgrade" consists of the construction of the subgrade in all places designated as required by the Plans and Specifications where pavement has not yet been laid.

It is estimated that there are approximately seven hundred two thousand seven hundred (702,700) square feet of subgrade remaining to be constructed, outside of tunnels and ventilation buildings. (Subgrade to be constructed in tunnels and ventilation buildings is included in the work provided for in Section Twenty-one (21) and Section Twenty-two (22), of Part IV of this Supplement, respectively).

Section 4—Shoulders.

The work remaining to be done for completion of "Shoulders" consists of the construction of shoulders at locations designated in the Plans and Specifications where the same have not yet been constructed, and the completion of shoulders partly constructed, but not yet completed, as required by the Plans and Specifications.

It is estimated that there are approximately two hundred forty-five thousand (245,000) square feet of shoulders remaining to be constructed, and that there are approximately one thousand eight hundred (1,800) square feet of partially constructed shoulders to be completed by the Contractor as required by the Plans and Specifications.

Section 5—Reinforcing Steel.

The work remaining to be done consists of the furnishing and placing of "Reinforcing Steel" at all locations as required by the Plans and Specifications; and also includes the brushing and cleaning, straightening and otherwise adjusting to conform to the Plans and Specifications of all reinforcing steel already placed, but about which concrete has not been placed, which has been exposed to the elements, and which has become rusted or coated with dirt or other foreign material, or bent or deformed, all to conform to the Plans and Specifications, and to provide reinforcing for the completed structures.

It is estimated that there are approximately thirty-three thousand (33,000) pounds of reinforcing steel remaining to be furnished and placed in various structures on the approach highways, and approximately seven hundred ninety-four thousand (794,000) pounds of reinforcing steel remaining to be furnished and placed in the tunnels.

Section 6—Steel Structures.

The work remaining to be performed under "Steel Structures" consists of the furnishing and placing of the trusses, purlins, braces and connection bolts, which support the louver frames, between the approach walls at the portals at each end of tunnel, and the furnishing and placing, in the tunnels, as required by the Plans and Specifications, of the structural steel which has not yet been installed. The Contractor, before fabricating steel to be erected at

any location, shall make such field measurements as are necessary to ensure the proper dimensions and fit of such steel at the location where it is to be placed.

It is estimated that there are approximately one hundred forty thousand (140,000) pounds of structural steel in the supports for the louver frames.

(It is estimated that there are approximately five hundred fifty-three thousand (553,000) pounds of structural steel remaining to be furnished and placed in the tunnels which are included in "Tunnel Construction", Section Twenty-one (21) of Part IV of this Supplement.

Section 7—Concrete Structures.

The work remaining to be done for completion of "Concrete Structures" consists of the construction, as required by the Plans and Specifications, of a retaining wall on the south side of the service roadway at the West Portal; coping structures at ends of approach walls at East and West Portals; walls at Margarido Drive and Buena Vista Place; parapet walls and rails on the Landvale Overhead structures, on Landvale Viaduct and walls, and on East Portal approach walls.

It is estimated that there are approximately four hundred thirty (430) cubic yards of Class "A" concrete remaining to be placed in these structures. (Tunnel and ventilation building concrete remaining to be furnished and placed is included in Sections Twenty-one (21) and Twenty-two (22) of Part IV of this Supplement, respectively.)

Section 8—Portland Cement Concrete Pavement.

The work remaining to be done under "Portland Cement Concrete Pavement" consists of all of the eight inch (8") Portland cement concrete pavement at East and West Portals, as required by the Plans and Specifications.

It is estimated that there are approximately thirty-seven thousand seven hundred (37,700) square feet of eight inch (8") Portland cement concrete pavement remaining to be constructed. The six inch (6") Portland cement concrete pavement required by the Plans and Specifications has been completed. (Concrete pavement to be constructed in tunnels and ventilation buildings is included in the work provided for in Section Twenty-one (21) and Section Twenty-two (22) of Part IV of this Supplement, respectively.)

Section 9—Penetration Oil Macadam Pavement.

The work remaining to be done under "Penetration Oil Macadam Pavement" consists of the construction of all penetration oil macadam pavement as required by the Plans and Specifications which has not yet been constructed, and also includes repairs to previously completed penetration oil macadam pavement necessary to make the same conform to the requirements of the Plans and Specifications. Penetration oil macadam pavement has been constructed on the Tunnel Road, and on the westerly approach road from its intersection with Broadway northeasterly a distance of approximately eight hundred (800) lineal feet. Penetration oil macadam

pavement which requires repairs is located in the vicinity of the Pedestrian Underpass on the westerly approach road, and on the Tunnel Road.

It is estimated that there are approximately six hundred sixty-five thousand (665,000) square feet of penetration oil macadam pavement remaining to be constructed as required by the Plans and Specifications.

It is estimated that there are approximately eight thousand eight hundred (8,800) square feet of penetration oil macadam pavement which must be repaired to complete the same as required by the Plans and Specifications.

Section 10—Concrete Curb and Gutter.

The work remaining to be done under "Concrete Curb and Gutter" consists of the construction of the following:

Six inch (6") curb in the vicinity of Margarido Drive, Buena Vista Place, Golden Gate Avenue, and Pacific Gas and Electric Substation.

Twelve inch (12") curb in the vicinity of Sacramento Northern Railway retaining wall and in the vicinity of the East and West portals of the tunnels.

Gutter in the vicinity of Margarido Drive, Buena Vista Place, Golden Gate Avenue, Sacramento Northern Railway retaining wall, and Pacific Gas and Electric Substation.

All of said curb and gutter shall be constructed as required by the Plans and Specifications.

It is estimated that there are approximately one thousand two hundred (1,200) lineal feet of six inch (6") curb, approximately nine hundred forty-five (945) lineal feet of twelve inch (12") curb and approximately two thousand five hundred (2,500) square feet of gutter, remaining to be constructed.

Section 11—Cement Sidewalks.

The work remaining to be done under "Cement Sidewalks" consists of the construction of cement sidewalks in the vicinity of Pedestrian Underpass, Margarido Drive, Buena Vista Place, Golden Gate Avenue, Sacramento Northern Railway Retaining Walls, and the East and West portals of the tunnels as required by the Plans and Specifications.

It is estimated that there are approximately nine thousand (9,000) square feet of cement sidewalks remaining to be constructed.

Section 12—Corrugated Metal Pipe Culverts.

The work remaining to be done under "Corrugated Metal Pipe Culverts" consists of the furnishing and installing of eight inch (8") diameter corrugated metal pipe culverts for drainage purposes along the roadway approaches; twelve inch (12") diameter corrugated metal pipe culverts for drainage purposes in the vicinity of the East Portal of the tunnel; and eighteen inch (18") diameter corrugated metal pipe culverts for drainage purposes on the West approach roads, all as required by the Plans and Specifications.

Fill protectors remain to be constructed for drainage purposes on the West approach roads, as required by the Plans and Specifications.

It is estimated that there are approximately one thousand (1,000) lineal feet of eight inch (8") diameter corrugated metal pipe culvert remaining to be furnished and installed, approximately one hundred fifty (150) lineal feet of twelve inch (12") diameter corrugated metal pipe culvert remaining to be furnished and installed, and approximately five hundred (500) lineal feet of eighteen inch (18") diameter corrugated metal pipe culvert remaining to be furnished and installed.

It is estimated that there are nine (9) fill protectors remaining to be furnished and installed.

Section 13—Reinforced Concrete Pipe Culvert.

The work remaining to be done under "Reinforced Concrete Pipe Culvert" consists of the furnishing and installing of approximately one hundred ninety (190) lineal feet of twenty-four inch (24") diameter reinforced concrete pipe culvert, extra strength (X type), as provided in the Plans and Specifications, for drainage purposes in the vicinity of the West portal of the tunnels.

Section 14—Vitrified Pipe Sewers.

The work remaining to be done under "Vitrified Pipe Sewers" consists of the construction, completion and repair of manholes with standard tops, manholes with inlet tops, manholes with grating tops, storm water inlets and lamp holes.

It is estimated that the following manholes are to be furnished and installed: one (1) manhole with standard top, one (1) manhole with inlet top, three (3) manholes with grating tops, two (2) storm water inlets, Type "B", three (3) storm water inlets, Type "C"; one (1) lamphole is to be repaired.

These items are to be installed in the vicinity of the East and West portals of the tunnels and on the approach roadways, all as required by the Plans and Specifications.

All vitrified pipe required to be furnished and installed has been furnished and installed except that required in the tunnels and ventilation buildings.

Section 15—Underdrains.

The work remaining to be done under "Underdrains" consists of furnishing and installing eight inch (8") perforated corrugated metal pipe underdrains in the vicinity of the East and West portals of the tunnels and along the West approach roadways for drainage purposes, as required by the Plans and Specifications.

It is estimated that there are approximately two thousand one hundred (2,100) lineal feet of underdrains remaining to be furnished and installed.

Section 16—Piping.

The work remaining to be done under "Piping" consists of the furnishing and installing of all of the six inch (6") diameter cast iron pipe together with all fittings and accessories, as required by the Plans

and Specifications, outside the tunnels and ventilation buildings. (Piping within the tunnels and ventilation buildings is provided for in Sections Twenty-one (21) and Twenty-two (22), Part IV of this Supplement, respectively.)

It is estimated that there are approximately two thousand twenty (2,020) lineal feet of piping, cast iron, six inch (6") diameter, remaining to be furnished and installed, outside the tunnels and ventilation buildings.

Section 17—Guard Rails and Pipe Hand Rails.

The work remaining to be done under "Guard Rails and Pipe Hand Rails" consists of the construction of all guard rails required by the Plans and Specifications but not yet constructed. Seven hundred (700) lineal feet of guard rails have been constructed along the Tunnel Road. It is estimated that approximately twelve thousand (12,000) lineal feet of guard rails required by the Plans and Specifications remain to be constructed.

Pipe hand rails remain to be constructed, as required by the Plans and Specifications, on walls, in the vicinity of Golden Gate Avenue, Temescal Culvert, Pacific Gas and Electric Substation, and underpasses.

It is estimated that approximately six hundred twenty (620) lineal feet of pipe hand rail remain to be constructed.

Pipe hand rails partially completed shall be finished and completed as required by the Plans and

Specifications. All pipe hand rails already in place which have been damaged shall be repaired, or new material supplied to complete the same, all as required by the Plans and Specifications.

Section 18—Rip Rap.

The work remaining to be done under "Rip Rap" consists of the construction of rip rap structures in the vicinity of the Landvale Overhead structure as required by the Plans and Specifications.

It is estimated that there are approximately ninety (90) cubic yards of rip rap remaining to be constructed.

Section 19—Paint and Painting.

The work remaining to be done under "Paint and Painting" consists of:

(a) The painting, as required by the Plans and Specifications, of all structural steel not yet installed;

(b) The completion of the painting, as required by the Plans and Specifications, of all structural steel which has not yet received the requisite number of coats;

(c) The repainting, to the standard required by the Plans and Specifications, of all surfaces heretofore painted which have been damaged;

(d) The painting, as required by the Plans and Specifications, of all timber guard rail which has not yet been constructed; and completion of the painting of constructed timber guard rail which has not

yet received the requisite number of coats, or on which paint coats have become damaged.

The Contractor shall examine carefully and thoroughly all painted or partially painted structures, and shall satisfy himself as to conditions there existing and the amount of work remaining to be done in connection with additional coats of paint and the repainting of damaged surfaces so that same shall conform to the requirements of the Plans and Specifications.

The decision of the District Engineer as to the locations and surfaces which may require additional coats of paint or repainting of damaged surfaces at any time during the progress of the work shall be final, and no extra payment will be allowed in the event the Contractor shall claim that the amount of repainting, or completion of partially painted surfaces required by the District Engineer does not correspond with that estimated by the Contractor.

Section 20—Metal Cribbing

The work remaining to be done under "Metal Cribbing" consists of furnishing and placing of the metal cribbing in the vicinity of the Landvale Viaduct as required by the Plans and Specifications.

No metal cribbing has been furnished or installed. It is estimated that there are approximately forty-six thousand (46,000) pounds of metal cribbing to be furnished and installed.

Section 21—Tunnel Construction

"Tunnel Construction" covers the construction of tunnels complete, as required by the Plans and Specifications. Some work has been performed on every portion of the tunnels, but no portion is complete. A general description of the approximate amount of the work which remains to be done to complete the "Tunnel Construction" is as follows: (for convenience, in addition to the description of the approximate lineal feet of items of work remaining to be done, the description by Engineer's Stations of approximate location of items is also given).

1. Upgrade or South Tunnel

(a) Excavation: Four hundred forty-six (446) lineal feet, (Stations 135+79 to 140+25), of excavation remains to be performed. Two (2) drifts have been excavated through this length. The necessary maintenance and support of these drifts to prevent cave-in shall be performed by the Contractor during the progress of the excavation of this tunnel.

(b) Concrete Arch Ring: Five hundred eighty-two (582) lineal feet of concrete arch ring remains to be constructed, (Stations 134+28 to 140+10). Footings for concrete arch ring have been constructed ahead of the full ring a distance of one hundred twenty-eight (128) lineal feet, (Stations 134+28 to 135+56).

(c) Grouting: Grouting has been completed a distance of one thousand forty-seven (1,047) lineal

feet, (Stations 111+53 to 122+00), from the western end of the concrete arch ring. There remains one thousand three hundred sixteen (1,316) lineal feet, (Stations 122+00 to 134+28 and 140+10 to 140+98), of the concrete arch ring now installed around which grouting is to be placed, as required by the Plans and Specifications. Grouting around the portions of the concrete arch ring now installed, but not yet grouted, includes such clearing out, and drilling out of grout holes as is necessary to place the grouting as required by the Plans and Specifications. Grouting, as required by the Plans and Specifications, shall be placed around all portions of the concrete arch ring hereafter constructed.

(d) Ceilings and Partitions: The ceiling or partition between the fresh air duct and the exhaust air duct has been partially constructed a distance of eight hundred eighty-one (881) lineal feet from the western end of the concrete arch ring, (Stations 111+53 to 120+34). The ceiling or partition between the roadway portion of the tunnel and the exhaust air duct has been partially constructed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+53 to 120+37), from the western end of the concrete arch ring.

Structural steel hangers and supports are partially installed easterly of these locations.

Patching, finishing and painting of the surfaces of the concrete on the partially constructed portions of the ceilings and partitions remain to be done.

Gunite partitions and other partition details, and air duct bulkheads, remain to be constructed in connection with these partially constructed ceilings and partitions. Exhaust port openings have been left in partially constructed ceilings. Slides, deflectors and other details required by the Plans and Specifications remain to be installed.

Completion of these partially constructed portions and the construction of ceilings and partitions in all of the remainder of the tunnel, with all accessories, remain to be done as required by the Plans and Specifications.

(e) Side Walls and Fresh Air Flues: Side walls and fresh air flues have been partially constructed and installed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+53 to 120+37), from the western end of the concrete arch ring; these walls require surface finishing, patching and painting, and flues require cleaning out, and setting and adjusting of nozzle openings, as required by the Plans and Specifications. Air flues for two (2) adits have been partially installed.

Finishing of partially completed walls and installation of flues and construction of flues and side walls in all remaining portions of the tunnel, as required by the Plans and Specifications, remain to be done.

(f) Curbs and Sidewalks: No part of the curbs and sidewalks required for the completion of this tunnel has been constructed, and all remains to be done, as required by the Plans and Specifications.

(g) Roadway Pavement: No portion of the subgrade or roadway pavement required by the Plans and Specifications has been constructed, and all remains to be done.

(h) Drainage Structures and Conduits: No portions of the drainage structures and conduits required by the Plans and Specifications have been constructed, except drains installed back of and through the arch ring in the portion of the tunnel in which the concrete arch ring and footings have been constructed; the Contractor will be required to furnish and construct all remaining portions of drainage structures and conduits, as required by the Plans and Specifications, in the portions of this tunnel in which the concrete arch ring and footings have been constructed. In all portions of this tunnel in which the concrete arch ring and footings have not been placed, the complete drainage structures and conduits, as required by the Plans and Specifications, shall be furnished, constructed and installed by the Contractor.

(i) Water Pipes: No part of the water pipes required to be constructed in this tunnel has been constructed. The Contractor will be required to furnish and install all water pipes, cocks, plugs, adaptors and other necessary accessories, as required by the Plans and Specifications, in the entire length of this tunnel.

2. Downgrade or North Tunnel

(a) Excavation: Nine hundred sixty-two (962) lineal feet, (Stations 129+86 to 139+48), of exca-

vation remains to be performed. One (1) drift has been excavated through on the south side of this tunnel; on the north side of this tunnel a drift has been excavated a distance of approximately seven hundred eighty-two (782) lineal feet westerly from the East Portal, and a distance of approximately one hundred fifty-nine (159) lineal feet easterly from the face of the main excavation; the distance remaining unexcavated between the ends of this drift is approximately ninety-nine (99) lineal feet; the necessary maintenance and support of these drifts to prevent cave-in shall be performed by the Contractor during the progress of the excavation of this tunnel.

(b) Concrete Arch Ring: One thousand eighty-nine (1,089) lineal feet of concrete arch ring remains to be constructed, (Stations 128+50 to 139+39). Footings for concrete arch ring have been constructed ahead of the full ring a distance of one hundred and twenty-one (121) lineal feet, (Stations 128+50 to 129+71).

(c) Grouting: Grouting has been completed a distance of one thousand one hundred and seven (1,107) lineal feet, (Stations 111+43 to 122+50), from the western end of the concrete arch ring. There remains six hundred seventy-nine (679) lineal feet, Stations 122+50 to 128+50 and 139+39 to 140+18), of the concrete arch ring now installed around which grouting is to be placed, as required by the Plans and Specifications. Grouting around

the portions of the concrete arch ring now installed, but not yet grouted, includes such clearing out, and drilling out of grout holes as is necessary to place the grouting as required by the Plans and Specifications. Grouting, as required by the Plans and specifications, shall be placed around all portions of the concrete arch ring hereafter constructed.

(d) Ceilings and Partitions: The ceiling or partition between the fresh air duct and the exhaust air duct has been partially constructed a distance of eight hundred seventy-three (873) lineal feet from the western end of the concrete arch ring, (Stations 111+43 to 120+16). The ceiling or partition between the roadway portion of the tunnel and the exhaust air duct has been partially constructed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+43 to 120+27), from the western end of the concrete arch ring.

Structural steel hangers and supports are partially installed easterly of these locations.

Patching, finishing and painting of the surfaces of the concrete on the partially constructed portions of ceilings and partitions remain to be done.

Gunite partitions and other partition details, and air duct bulkheads, remain to be constructed in connection with these partially constructed ceilings and partitions. Exhaust port openings have been left in partially constructed ceilings. Slides, deflectors and other details required by the Plans and Specifications remain to be installed.

Completion of these partially constructed portions and the construction of ceilings and partitions

in all of the remainder of the tunnel, with all accessories, remains to be done, as required by the Plans and Specifications.

(e) Side Walls and Fresh Air Flues: Side walls and fresh air flues have been partially constructed and installed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+43 to 120+27), from the western end of the concrete arch ring; these walls require surface finishing, patching and painting; and flues require cleaning out, and setting and adjustment of nozzle openings, as required by the Plans and Specifications.

Finishing of partially completed walls and installation of flues and construction of flues and side walls in all remaining portions of the tunnel, as required by the Plans and Specifications, remain to be done.

(f) Curbs and Sidewalks: No part of the curbs and sidewalks required for the completion of this tunnel has been constructed, and all remains to be done, as required by the Plans and Specifications.

(g) Roadway Pavement: No portion of the subgrade or roadway pavement required by the Plans and Specifications has been constructed, and all remains to be done.

(h) Drainage Structures and Conduits: No portions of the drainage structures and conduits required by the Plans and Specifications have been constructed, except drains installed back of and through the arch ring in the portion of the tunnel

in which the concrete arch ring and footings have been constructed; the Contractor will be required to furnish and construct all remaining portions of drainage structures and conduits, as required by the Plans and Specifications, in the portions of this tunnel in which the concrete arch ring and footings have been constructed. In all portions of this tunnel in which the concrete arch ring and footings have not been placed, the complete drainage structures and conduits, as required by the Plans and Specifications, shall be furnished, constructed and installed by the Contractor.

(i) Water Pipes: No part of the water pipes required to be constructed in this tunnel has been constructed. The Contractor will be required to furnish and install all water pipes, cocks, plugs, adaptors and other necessary accessories, as required by the Plans and Specifications, in the entire length of this tunnel.

3. Gross Adits

The two (2) most westerly "Cross Adits" of the three (3) required by the Plans and Specifications have been completed. Excavation for the third cross adit has been started from the South or Upgrade Tunnel and the excavation has proceeded approximately fifteen (15) lineal feet toward the North or Downgrade Tunnel. The Contractor is required to complete this adit as required by the Plans and Specifications.

4. Completion of Tunnels

The tunnels shall be completed in every detail, as required by the Plans and Specifications. Schedule A, Schedule B and Schedule C hereinbefore set forth in Part II, of this Supplement, provide for the performance of this work. The general description of work remaining to be constructed and completed, as hereinabove set forth, is approximate only. The Contractor under any Schedule shall perform all work, furnish all labor, materials, tools and equipment necessary and incidental to the completion of work now partially constructed and for the execution of all work required for the completion of the various elements of "Tunnel Construction" which have not yet been constructed, all as required by the Plans and Specifications and included in such Schedules. The omission herein of specific mention of any detail, item, or quantity shall not relieve the Contractor of his responsibility and obligation to perform all labor and furnish all materials of each and every kind necessary, and to construct, complete and finish the various elements of these tunnels included in the Schedules therefor, in every detail as required by the Plans and Specifications; all of this is to be done without other payment therefor than the prices bid for "Tunnel Construction", under each Schedule as hereinbefore provided.

5. Payment

The prices bid and the prices to be paid by the District to complete "Tunnel Construction" under Schedule A, Schedule B and Schedule C shall constitute full compensation to the Contractor for the completion of "Tunnel Construction", including "Cross Adit", as required by the Plans and Specifications, under each of said Schedules respectively, except that "Reinforcing Steel" furnished and installed under Schedule A and Schedule C shall be paid for per pound in place, as provided in the Specifications.

Section 22—Ventilation Buildings

The "Ventilation Buildings" required by the Plans and Specifications to be constructed at the eastern and western ends of the tunnel are partially constructed.

The Contractor shall complete the ventilation buildings in every detail as required by the Plans and Specifications. The Contractor shall perform all work, furnish all labor, materials, tools and equipment necessary and incidental to the repair and refinishing of work now in place, and required for the completion of the construction of these buildings in accordance with the Plans and Specifications.

The roofing over the fan room of the West ventilation building has been damaged and was rejected by the District prior to the abandonment of the work by the former contractor. The Contractor

who completes the work shall completely reconstruct this roofing, damaged roofing to be removed and new roofing to be furnished and constructed in accordance with the Plans and Specifications. The Contractor shall patch and repair defective or damaged wall surfaces and all other portions of said structures before painting.

The Contractor who completes the work shall construct, supply and furnish roadway pavement, curbs, sidewalks and all accessories in the ventilation buildings all as required by the Plans and Specifications.

The foregoing general description of the work remaining to be done, constructed and completed, as hereinabove set forth, is approximate only and, in particular, does not include a complete statement of the repairs and refinishing that will be required to complete the structures as left in place by the contractor who abandoned the work on this project. The omission herein of specific mention of any detail, item or quantity shall not relieve the Contractor of his responsibility and obligation to provide all labor, tools, equipment, and materials of each and every kind necessary to construct, complete and finish the ventilation buildings in every detail as required by the Plans and Specifications. All of this is to be done without other payment therefor than the price bid for "Completion of Ventilation Buildings".

Section 23—Ventilation Equipment

The "Ventilation Equipment" required by the Plans and Specifications to be furnished and installed in the ventilation buildings at the eastern and western ends of the tunnel has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the ventilation equipment in both of the said buildings in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the ventilation equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the ventilation equipment now on the project and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories remaining to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the ventilation equipment now in place, including cleaning and relubricating bearings, and do all things necessary in order that, at the completion of the Contract, the ventilation equipment shall be complete in every respect, and shall meet

all of the requirements and tests set forth in the Plans and Specifications.

Section 24—Mechanical Equipment

The "Mechanical Equipment" required by the Plans and Specifications to be furnished and installed on the project of the District has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the mechanical equipment on the project in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the mechanical equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the mechanical equipment now on the project, and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories required to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the mechanical equipment now in place, and do all things necessary in order that, at the completion of the Contract, the mechanical equipment shall be complete in every respect, and shall meet all of the re-

quirements and tests set forth in the Plans and Specifications.

Section 25—Electrical Equipment

The "Electrical Equipment" required by the Plans and Specifications to be furnished and installed on the project of the District has been partly furnished and installed. The completion of the electrical equipment has been divided into Schedule C, Schedule D, and Schedule E.

The Contractor under each Schedule last above mentioned is required to furnish and install all of the remainder of the electrical equipment included in the Schedule for which he is awarded a Contract, in every detail, as required by the Plans and Specifications, and shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of such electrical equipment strictly in accordance with all the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the electrical equipment now on the project, and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories required to be furnished, and work remaining to be done under the Schedule upon which he bids; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and

adjustments to the portions of the electrical equipment now in place, and do all things necessary in order that, at the completion of the Contract awarded to him, the electrical equipment included therein shall be complete in every respect, and shall meet all of the requirements and tests set forth in the Plans and Specifications.

Section 26—Carbon Monoxide Detectors and Recorders

The "Carbon Monoxide Detectors and Recorders" shall be furnished and installed, as required by the Plans and Specifications.

No part of this equipment has been furnished or installed.

Section 27—Repairing Damage and Imperfect Work and Drainage, on Highway Construction and Appurtenant Structures

The Contractor to whom a Contract is awarded to perform the work included in Schedule G shall perform all work, furnish all labor, tools, materials and equipment necessary for finishing and completing all parts of the work on the highway approaches and appurtenant structures in every detail, as required by the Plans and Specifications.

Without limiting the generality of the foregoing, and as a general description of the work required to be done in repairing damaged and imperfect work on said portions of the project, the Contractor shall perform all work and furnish all labor, tools,

material and equipment necessary to repair and complete the partially constructed shoulders hereinbefore mentioned, to repair penetration oil macadam pavement hereinbefore mentioned, to complete and repair curbs and gutters previously constructed so as to make the same conform to the Plans and Specifications, to brush, clean, straighten and otherwise adjust exposed reinforcing steel as hereinbefore mentioned, to repair the lamphole hereinbefore mentioned, to complete partially completed pipe hand rails and repair damaged pipe hand rails hereinbefore mentioned, to complete the paint and painting, of work included in Schedule G, to clean out all culverts and drainage channels which have become blocked or otherwise obstructed in any manner during previous construction operations or during Contractor's operations, and to maintain and keep the same clear at all times during construction as a part of the work to be performed under the Contract awarded under said Schedule G. All of the work described in this section of Part IV hereof, is to be performed by the Contractor in a manner, and with the purpose that all parts of the work included in Schedule G hereof, shall be completed in accordance with the requirements of the Plans and Specifications.

The price bid for "Repairing Damage and Imperfect Work and Drainage, on Highway Construction and Appurtenant Structures" shall constitute full compensation to the Contractor for the furnish-

ing of all labor, tools, material and equipment and the performance of all work necessary or incidental to the completion of the above described work.

PART V—PAYMENTS

(a) Partial Payments

Payments will be made only upon the certificate of the District Engineer for work actually performed. The District Engineer shall measure the work on or about the first day of each month and at the time of the completion of the work, and shall render a certificate on or about the tenth day of each month and at the completion of the work, stating the amount of work performed during the previous calendar month, and during the current month, at the time of completion. The Contractor shall then, at the times above specified, be entitled to receive a payment from the District in the amount of seventy-five percent (75%) of the amount specified in said District Engineer's certificate, provided that no such estimate or payment shall be required to be made when, in the judgment of the District Engineer, the work is not proceeding in accordance with the provisions of the contract, or when, in his judgment, the total value of the work done since the last estimate amounts to less than Five Hundred Dollars ($500.00), except the certificate and payment required at the completion of the entire work.

The acceptance by the Contractor of the final seventy-five percent (75%) payment for the completed work shall be and shall operate as a release

to the District from all claims and liability to the Contractor for anything done or furnished for or relating to the work, or for any act or neglect of the District or its agent in any way affecting the work, excepting the claim of the Contractor against the District for the moneys herein provided to be paid by the District to the Contractor thirty-five (35) days after the acceptance of the contract.

(b) Final Payments.

Thirty-five (35) days after the acceptance of the work by a certificate of acceptance duly rendered by the District Engineer and final approval and acceptance by the Board of Directors of the District, the Contractor shall be entitled to receive a payment of the balance due under this contract in the amount of twenty-five percent (25%) of the aggregate amount of all certificates of the District Engineer.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. X-11. Filed June 1, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT X-111

Schedule Showing Computed Total Cost of Construction of Project Based on Unit Prices Set Forth in Contract Dated June 4, 1934, Between Six Companies of California and Joint Highway District No. 13 of the State of California, and Units of Work Performed Under All Contracts.

No.	Items	Quantities by Estimate No. 25 Six Companies of California	Quantities—Total Six Companies of California and Schedules A, B, C, D, E, F, G and H	Units	Six Companies of California Contract Prices	Amounts at Six Companies of California Contract Prices
1	Grading	807,032	865.370	Cu. Yds.	0.33	$ 285,572.10
2	Overhaul	4,586,272	5,716,795	Sta. Yds.	0.005	28,583.98
3	Structural Excavation—Class "A"	37,767	39,062.89	Cu. Yds.	1.20	46,875.47
4	Structural Excavation—Class "B"	361	361	Cu. Yds.	2.00	722.00
5	Shoulders	5,400	224,803	Sq. Ft.	0.035	7,868.11
6	Reinforcing Steel	3,739,949	4,719,214	Lbs.	0.04	188,768.56
7	Structural Steel	270,307	424,112	Lbs.	0.05	21,205.60
8	Concrete Structures—Class "A" Concrete	12,608	13,032.77	Cu. Yds.	15.50	202,007.94
9	Concrete Structures—Class "B" Concrete	1,223.1	1,223.1	Cu. Yds.	14.50	17,734.95
10	Portland Cement Concrete Pavement—8 inch	—	30,760	Sq. Ft.	0.24	7,382.40
11	Portland Cement Concrete Pavement—6 inch	31,101	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	42,609	42,609	Sq. Ft.	0.08	3,408.72
13	Penetration Oil Macadam Pavement	80,000	745,612.30	Sq. Ft.	0.14	104,385.72
14	Concrete Curbs—6 inch	3,391	4,654.88	Lin. Ft.	0.35	2,420.54

DEFENDANT'S EXHIBIT X-111 (Continued)

No.	Items	Quantities by Estimate No. 25 Six Companies of California	Quantities—Total Six Companies of California and Schedules A, B, C, D, E, F, G and H	Units	Six Companies of California Contract Prices	Amounts at Six Companies of California Contract Prices
15	Concrete Curbs—12 inch	—	1,023.50	Lin. Ft.	0.80	818.80
16	Concrete Curbs—6 inch with guard	40	40	Lin. Ft.	1.00	40.00
17	Concrete Gutters	3,842	6,917.93	Sq. Ft.	0.25	1,729.48
18	Cement Sidewalks	10,454	21,232	Sq. Ft.	0.13	2,760.16
19	Fill Protectors	6	13	Each	19.00	247.00
20	Corrugated Metal Pipe Culvert—8 inch	736	1,587	Lin. Ft.	1.30	2,063.10
21	Corrugated Metal Pipe Culvert—12 inch	478	742	Lin. Ft.	2.00	1,484.00
22	Corrugated Metal Pipe Culvert—18 inch	1,046	2,171	Lin. Ft.	3.00	6,513.00
23	Reinforced Concrete Pipe Culvert—10 inch "S"	154	154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 inch "S"	753	753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 inch "S"	395	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 inch "S"	—	—	Lin. Ft.	2.00	—
27	Reinforced Concrete Pipe Culvert—24 inch "X"	1,326	1,831	Lin. Ft.	4.40	8,056.40

DEFENDANT'S EXHIBIT X-111 (Continued)

No.	Items	Quantities by Estimate No. 25 Six Companies of California	Quantities—Total Six Companies of California and Schedules A, B, C, D, E, F, G and H	Units	Six Companies of California Contract Prices	Amounts at Six Companies of California Contract Prices
28	Reinforced Concrete Pipe Culvert—36 inch "X"	579	579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 inch	235	235	Lin. Ft.	1.00	235.00
30	Vitrified Pipe Sewers—8 inch	215	215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10	13	Each	90.00	1,170.00
32	Manholes—Inlet Tops	4	5	Each	100.00	$ 500.00
33	Manholes—Grating Tops	3	13	Each	90.00	1,170.00
34	Storm Water Inlets—34 inch openings	1	1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4	6	Each	100.00	600.00
36	Storm Water Inlets—"C"	8	12	Each	80.00	960.00
37	Lamp Holes—6 inch	2	2	Each	24.00	48.00
38	Lamp Holes—8 inch	1	1	Each	26.00	26.00
39	Lamp Holes—12 inch	3	3	Each	36.00	108.00
40	Hand Hole	2	2	Each	30.00	60.00
41	Underdrains—8 in. perf. corrug. metal pipe	3,360	5,709	Lin. Ft.	1.40	7,992.60
42	Piping, Cast Iron—6 inch	—	1,662	Lin. Ft.	1.50	2,493.00
43	Guard Rail	653	5,336	Lin. Ft.	0.80	4,268.80

DEFENDANT'S EXHIBIT X-111 (Continued)

DEFENDANT'S EXHIBIT X-111 (Continued)

No.	Items	Quantities by Estimate No. 25 Six Companies of California	Quantities—Total Six Companies of California and Schedules A, B, C, D, E, F, G and H	Units	Six Companies of California Contract Prices	Amounts at Six Companies of California Contract Prices
44	Pipe Hand Rail	609	1,265.40	Lin. Ft.	3.00	3,796.20
45	Riprap	128	216.80	Cu. Yds.	5.00	1,084.00
46	Metal Cribbing	—	34,851	Lbs.	0.13	4,530.63
47	Stone or Gravel for Foundations	337	337	Cu. Yds.	3.00	1,011.00
48	Tunnel Construction—Type "A"	4,004.60	5,816.39	Lin. Ft.	325.00	1,890,326.75
49	Tunnel Construction—Type "B"	—	—	Lin. Ft.	400.00	—
50	Cross Adits	199	322	Lin. Ft.	40.00	12,880.00
51	Ventilation Buildings—West and East Bldgs., Complete	89.4 %	100%	Lump Sum	340,000.00	340,000.00
52	Ventilation Equipment—Furn. and Install. Complete	52.06%	100%	Lump Sum	160,000.00	160,000.00
53	Mechanical Equipment—Furn. and Install. Complete	12.00%	100%	Lump Sum	60,000.00	60,000.00
54	Electrical Equipment—Furn. and Install. Complete	19.73%	100%	Lump Sum	210,000.00	210,000.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	—	100%	Lump Sum	15,000.00	15,000.00
	Total					$3,671,785.99

DEFENDANT'S EXHIBIT X-113

JOINT HIGHWAY DISTRICT #13
OF THE STATE OF CALIFORNIA

COST ATTRIBUTABLE TO CESSATION
OF WORK BY SIX COMPANIES OF CALIFORNIA

June 13, 1936, to November 9, 1936.

Protection and Maintenance:			
Materials, Supplies and Expense	—Schedule A-3	$19,769.48	
Engineering Services	—Schedule B-1	4,810.19	
Watchmen, Fire Bosses and Labor as per summary at foot of	—Schedule B-2	23,364.66	
Total—Protection and Maintenance			$47,944.33
Measuring Work and Completing Specifications:			
Materials, Supplies and Expense	—Schedule A-3	$ 1,442.78	
Services Measuring Work	—Schedule B-3	3,639.79	
Services Completing Specifications	—Schedule B-3	51.65	
Total—Measuring Work and Completing Specifications			5,134.22
Re-Advertising:			
Cost of Publication of Advertising	—Schedule A		1,862.45
Insurance:			
Cost of Fire, Explosion, Liability, Fidelity and Workmen's Compensation Insurance	—Schedule A		14,060.85
Total Costs—Above			$69,001.85

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA — SCHEDULE A-1

Detail of Charges for Material and Supplies, and Services Other Than Labor, Occasioned by Cessation of Work by Six Companies of California. June 13, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Voucher	Amount Charged Elsewhere	Amount Charged Herein	Protection to, and Maintenance of Property	Measuring Work and Completing Specifications	Readvertising	Insurance Costs
	June, 1936, Vouchers								
1159	National Lead Company	Outside Paint and Wall Brushes	14.68		14.68	14.68			
1169	Maxwell Wholesale Hardware Company	Reflectors, Lanterns, Globes, and Oil	55.04	3.20	51.84	51.84			
1170	Plant Rubber & Asbestos Works	Fine White Hydraulic Packing	4.82		4.82	4.82			
	July, 1936, Vouchers								
1185	Hamilton Signs	6-10"x3' Board Signs	6.00		6.00	6.00			
1215	California Wire Cloth Co.	4' Steel Wire Cloth 1" sp #4 48"	10.44		10.44	10.44			
1216	Kronke-Brampton Co.	1-34'x48' Tarpaulin	95.58		95.58	95.58			
1218	Bethlehem Steel Company	532 Steel Bars for Gunite Reinforcing	270.67		270.67	270.67			
1219	E. D. Bullard Company	8–Respirators & 4 Pr. Goggles	33.37		33.37	33.37			
1225	Oakland Blue Print Co.	20 Sets Blue Prints Complete Plans	668.48	9.07	659.41		659.41		
1228	DuFrane Machine & Engine Works, Inc.	Repairs to Equipment	5.00		5.00	5.00			
1230	New Claremont Garage	Repairs to Motor on Mixer	6.50		6.50	6.50			
1233	Transit Concrete, Ltd.	Gunite Sand, Cement	2,795.68		2,795.68	2,795.68			
1239	Charles S. Hughes Co.	Cement	3,484.87		3,484.87	3,484.87			
1240	Maxwell Wholesale Hardware Company	Urban Paper, Lantern Wicks, Bolts, Etc.	6.73	3.50	3.23	3.23			
1241	Associated Oil Company	Kerosene & Hi Pres Grease	31.08	16.97	14.11	14.11			
1242	Associated Oil Company	Kerosene & Oil	20.20		20.20	20.20			
	August, 1936, Vouchers								
1263	DeFrane Machine & Engine Works, Inc.	Straighten Turnbuckle Units, Etc.	4.00		4.00	4.00			
1270	Tilden Lumber Company	500, 2x4–12" O. P. Wedges	17.32		17.32	17.32			
1275	Cement Gun Construction Co.	Equipment Rental and Services	718.18		718.18	718.18			
1287	The Tribune Press	150 Books (Specifications)	669.50		669.50		669.50		
1300	Pacific Pumping Company	Rent & Service Pump Equipment	63.00		63.00	63.00			
1312	The Tribune Press	200 Copies Legal Ad. of 8/28/36	5.92		5.92			5.92	
	September, 1936, Vouchers								
1318	Six Companies of California	Water Charge and Rent of Equipment	3,545.71		3,545.71	3,545.71			
1323	Six Companies of California	Water Charge 7/28/36–8/27/36	80.94		80.94	80.94			
1325	Pacific Gas & Electric Co.	Light and Power	1,611.78		1,611.78	1,611.78			
1332	Six Companies of California	Small Tools and Equipment)			169.92	169.92			
		Materials and Supplies)			129.35	129.35			
		Equipment Rental)	1,146.29		847.02	847.02			
1334	The Tribune Publishing Co.	Notice to Contractors—1 Time)			49.05			49.05	
		Notice to Contractors—3 Times)	184.35		135.30			135.30	
1346	Pacific Pumping Company	Rent of Pumping Equipment	90.00		90.00	90.00			
	October, 1936, Vouchers								
1362	United Iron Works	1–30" Chisel—2" Cutting Edge	3.60		3.60	3.60			
1365	The Inter-City Printing Co.	100 Sets Proposal Sheets)		24.67					
		500 Sets Supplement to Specifications)	138.54		113.87		113.87		
1367	Tilden Lumber Company	1000 2x4–12" O. P. Wedges	26.50		26.50	26.50			
1370	W. H. Parrish Co.	Hauling Timbers West to East Portal	20.25		20.25	20.25			
1372	The Tribune Publishing Co.	Notice to Contractors—3 Times	130.50		130.50			130.50	

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA — SCHEDULE A-2

Detail of Charges for Material and Supplies, and Services Other Than Labor, Occasioned by Cessation of Work by Six Companies of California. June 13, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Voucher	Amount Charged Elsewhere	Amount Charged Herein	Protection to, and Maintenance of Property	Measuring Work and Completing Specifications	Readvertising	Insurance Costs
	Totals Brought Forward		15,965.52	57.41	15,908.11	14,144.56	1,442.78	320.77	
1378	Henry Cowell Lime and Cement Co.	Top Sand & Gravel to East Portal	44.87		44.87	44.87			
1381	Six Companies of California	Rent of Water System, $150.00, and of Electric Plant, $450.00, Less Return of Small Tools and Supplies, $28.91	571.09		571.09	571.09			
1382	Six Companies of California	Water Used Aug. 27th to Sept. 29th	47.34		47.34	47.34			
1401	Pacific Pumping Company	Rent of Pumping Equipment	93.00		93.00	93.00			
	November, 1936, Vouchers								
1414	California Concrete Products Co.	24-Ft. 12" T & G Concrete Pipe	18.54		18.54	18.54			
1415	Herb Dana	Fire and Explosion Insurance	2,520		2,520.00				2,520.00
1417	Herb Dana	Fire and Explosion Insurance	3,820.00		3,820.00				3,820.00
1420	Herb Dana	P. L. & C. L. Insurance	300.00		300.00				300.00
1433	Six Companies of California	October Rental Water & Electric System	620.00		620.00	620.00			
	December, 1936, Vouchers								
1450	Pacific Gas & Electric Co.	Light and Power Aug. 1st to Nov. 11th	1,931.56		1,931.56	1,931.56			
1451	Fredrickson & Watson Constr. Co.	Slurry Base, Screenings & Asphalt Emulsion—Detour at East Portal	1,48.18		1,408.18	1,408.18			
1459	Pacific Pumping Company	November Rent of Pump Equipment	27.00		27.00	27.00			
1466	Six Companies of California	Water Charge	70.41		70.41	70.41			
1467	Six Companies of California	November Rent of Water & Electric Systems)			200.00	200.00			
		Small Tools and Supplies)	200.96		.96	.96			
1470	The Tribune Publishing Co.	Notice to Contractors—Nov. 16, 23 & 30)			136.17				
		Notice to Contractors—Nov. 20, 27 & Dec. 4)			136.17				
		Notice to Contractors—Nov. 25 & Dec. 5 & 12)	415.26		142.92			415.26	
1471	The Post Enquirer	Notice to Contractors—Nov. 20, 27 & Dec. 4)			179.67				
		Notice to Contractors—Nov. 25 & Dec. 5 & 12)	365.28		185.61			365.28	
1506	Maxwell Wholesale Hardware Company	Lanterns and Ruby Globes	23.18	6.80	16.38	16.38			
	January, 1937, Vouchers								
1513	State Compensation Fund	Compensation Insurance 11/21/35-11/21/36	4,544.24	1,957.16	2,587.08				2,587.08
1522	Associated Oil Company	Kerosene	40.45	28.75	11.70	11.70			
	February, 1937, Vouchers								
1560	The Post Enquirer	Notice to Contractors Jan. 14, 21 & 26)			177.66				
		100 Copies of Notices)	180.75		3.09			180.75	
1561	The Tribune Publishing Co.	Notice to Contractors Jan. 14, 21, & 26 and 100 copies of Notice	140.67		140.67			140.67	
1568	Fredrickson & Watson Construction Co.	Asphalt Emulsion in Place	76.82		76.82	76.82			
1594	Herb Dana	P. L. and C. L. Insurance	233.94		233.94				233.94
	March, 1937, Vouchers								
1609	Herb Dana	Liability Insurance	100.00		100.00				100.00
1617	The Tribune Publishing Co.	Notice to Contractors Feb. 18 & 25th	93.67		93.67			93.67	
1648	The Tribune Publishing Co.	Notice to Contractors Mar. 19 & 26th	94.17		94.17			94.17	

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

SCHEDULE A-3

Detail of Charges for Material and Supplies, and Services Other Than Labor, Occasioned by Cessation of Work by Six Companies of California. June 13, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Voucher	Amount Charged Elsewhere	Amount Charged Herein	Protection to, and Maintenance of Property	Measuring Work and Completing Specifications	Readvertising	Insurance Costs
	Totals Brought Forward		33,946.90	2,050.12	31,896.78	19,282.41	1,442.78	1,610.57	9,561.02
	April, 1937, Vouchers								
1668	The Post Enquirer	Notice to Contractors Feb. 18 & 25th)			153.12				
		100 Printed Slips)	156.21		3.09			156.21	
1669	The Tribune Publishing Co.	Notice to Contractors, April 1 & 8th	95.67		95.67			95.67	
1672	Herb Dana	Public Liability Insurance	1,129.52		1,129.52				1,129.52
	July, 1937, Vouchers								
1819	Herb Dana	Fire and Explosion Insurance	392.32		392.32				392.32
1835	Herb Dana	P. L. and C. L. Insurance	1,351.54		1,351.54				1,351.54
	September, 1937, Vouchers								
1935	Herb Dana	P. L and C. L. Insurance	300.00		300.00				300.00
	October, 1937, Vouchers								
1969	Herb Dana	P. L. and C. L. Insurance	388.21		388.21				388.21
1980	Cement Gun Construction Co.	Removal of Concrete & Gunite Work	487.07		487.07	487.07			
2009	Herb Dana	Fire and Explosion Insurance	10.74		10.74				10.74
	December, 1937, Vouchers								
2091	Herb Dana	Fire and Explosion Binder	448.18		448.18				448.18
2117	Herb Dana	P. L. and C. L. Insurance 9/25/37-12/5/37	479.32		479.32				479.32
	Totals		39,185.68	2,050.12	37,135.56	19,769.48	1,442.78	1,862.45	14,060.85

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

SCHEDULE B-1

Detail of Engineering Services on Maintenance—
From Monthly Pay Rolls

Services at Tunnel:	Month During Which Services Rendered—All During 1936					
	November	October	September	August	July	June
1	8.00	27.38	30.62	32.16	38.74	
2	29.00	34.78	48.66	12.00	50.74	
3	29.00	18.12	48.66	36.16	67.19	
4	29.00		42.16	36.16	26.54	
5	29.00	27.38	46.11	28.16	8.00	
6	29.00	27.38	12.00	28.16	53.74	
7	45.00	34.78	20.62	28.16	53.74	
8	12.00	34.78	50.36	36.16	53.74	
9	45.00	27.38	28.16	19.00	61.44	
10		27.38	42.66	28.16	61.44	
11		12.00	28.16	28.16	52.12	
12		16.26	35.41	61.16	16.00	
13		16.26	12.00	61.16	53.74	
14		37.38	28.16	61.16	61.74	
15		27.38	28.16	45.41	56.49	18.54
16		27.38	36.16	12.00	61.74	26.54
17		27.38	28.16	44.54	53.74	36.16
18		12.00	36.16	36.54	53.74	18.54
19		27.38	32.16	44.54	16.00	28.16
20		34.78	12.00	25.75	36.16	28.16
21		34.78	28.16	33.00	48.66	8.00
22		34.78	28.16	22.75	36.16	57.1
23		34.78	28.16	13.50	36.16	54.1
24		34.78	28.16	29.00	36.16	49.1
25		12.00	28.16	31.00	32.16	54.16
26		27.38	28.16	33.00	16.00	37.62
27		34.78	12.00	33.00	36.16	16.62
28		34.78	28.16	33.00	36.16	12.00
29		34.78	35.86	22.75	36.16	16.62
30		34.78	28.16	12.00	36.16	
31		41.03		37.12	36.16	
Totals	255.00	846.21	919.68	1,004.82	1,322.88	461.60

The above supported by daily time reports covering the monthly pay roll of the engineering staff.

The above total $4,810.19, summarized as follows:

Month of June, 1936	461.60
Month of July, 1936	1,322.88
Month of August, 1936	1,004.82
Month of September, 1936	919.68
Month of October, 1936	846.21
Month of November, 1936	255.00
Total	4,810.19

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Detail of Charges for Services—Watchmen—From Monthly Pay Roll

Date of Service:	Daily Total	Grand Total
June 19, 1936	18.42	
20	41.22	
22	17.50	
24	18.72	
26	12.50	108.36
July 20, 1936	8.00	
21	8.00	
22	8.00	
23	8.00	
24	8.00	
25	3.85	
26	8.00	
27	7.70	
28	7.70	
29	7.70	
30	7.70	
31	7.70	90.35

August 1, 1936	7.70	
3	7.70	
4	7.70	
5	7.70	
6	7.70	
7	7.70	
8	7.70	
9	7.00	
10	8.00	
23	6.00	
30	6.00	
31	7.00	87.90
September 6, 1936	6.00	
7	16.62	
12	10.58	33.20
Total—Watchmen—From Monthly Pay Roll		319.81
Superintendence—From Monthly Pay Roll:		
Month of July	600.00	
Month of August	600.00	
Month of September	600.00	
Month of October	300.00	
Total—Superintendence—From Monthly Pay Roll		2,100.00

SCHEDULE B-2

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

Detail of Charges for Services Rendered—From Weekly Pay Roll

From Weekly Pay Roll:		Totals	Watchmen	Fire Bosses	Tunnel Maintnce.	East Portal Drain	Margaride Drive
Week Ending:	Checks Issued						
6/20/36	#1937-1964	578.36	177.00	161.56	239.80		
6/27/36	2020-2050	734.84	320.50	242.34	172.00		
7/ 4/36	2059-2170	2,283.81	304.50	201.95	1,777.36		
7/11/36	2202-2304	2,787.00	251.50	242.34	2,293.16		
7/18/36	2313-2408	2,978.15	248.00	242.34	2,487.81		
7/25/36	2418-2457	1,126.92	209.50	242.34	675.08		
8/ 1/36	2510-2531	806.52	206.50	242.34	357.68		
8/ 8/36	2557-2578	814.52	206.50	242.34	365.68		
8/15/36	2580-2600	816.52	246.50	242.34	327.68		
8/22/36	2601-2623	829.12	253.50	242.34	333.28		
8/29/36	2672-2688	676.52	254.50	242.34	179.68		
9/ 5/36	2714-2729	625.34	259.00	242.34	124.00		
9/12/36	2731-2746	631.34	265.00	242.34	124.00		
9/19/36	2764-2779	631.34	265.00	242.34	124.00		

From Weekly Pay Roll:		Totals	Watchmen	Fire Bosses	Tunnel Maintnce.	East Portal Drain	Margarido Drive
9/26/36	2785-2799	570.84	273.00	242.34		55.50	
10/ 3/36	2844-2862	692.84	273.00	242.34	122.00	55.50	
10/10/36	2873-2892	726.44	273.00	242.34	140.00	71.10	
10/17/36	2893-2913	720.84	266.00	242.34	112.00	100.50	
10/24/36	2920-2936	615.84	273.00	242.34		100.50	
10/31/36	2970-2986	575.45	273.00	201.95		100.50	
11/ 7/36	3021-3036	569.50	224.00	245.00			100.50
11/ 9/36	3037-3052	152.80	56.00	70.00			26.80
Totals—From Weekly Pay Roll		20,944.85	5,378.50	5,000.24	9,955.21	483.60	127.30

Summarizing the charges for all services rendered to the 9th day of November, 1936 and summarized above and on the sheet opposite hereto, the following is offered:

Services of Superintendence	$ 2,100.00
Services of Watchmen	5,698.31
Services of Fire Bosses	5,000.24
Services at East Portal Drain	483.60
Services at Margarido Drive	127.30
Services—Other Labor at Tunnel	9,955.21
Total	23,364.66

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

SCHEDULE B-3

Detail of Engineering Services—Measuring Work—
From Monthly Pay Rolls

Services Rendered at Tunnel:	Months During Which Work Performed		
	Aug., 1936	July, 1936	June, 1936
1	57.15	71.17	
2		84.42	
3	53.42	69.72	
4	43.92		
5	46.92		
6	46.92	71.92	
7	40.92	71.92	
8	27.67	71.92	
9		64.22	
10	37.42	64.22	
11	54.70	55.67	
12	7.70		
13	28.42	71.92	
14	21.70	69.42	
15	22.40	63.92	99.67
16		69.42	74.07
17		74.17	88.78
18		58.42	95.80
19			84.28
20		83.42	108.95
21		56.92	
22		69.42	80.00
23		94.00	44.44
24		94.00	65.78
25		72.00	54.67
26			79.14
27		94.30	73.05
28		94.30	
29		94.30	88.92
30		94.30	147.92
31		85.65	
Totals—Measuring Work	489.26	1,965.06	1,185.47

foregoing represent an aggregate of $3,689.79 expended suring work between the 15th day of June, 1936, and h day of August, 1936.

ddition, during this same period of time, the aggregate $51.65 is shown as having been expended for services pleting specifications.

services so indicated may be identified as to the days ch performed, as follows:

July 21, 1936	15.00
July 22, 1936	14.00
July 31, 1936	8.65
August 12, 1936	14.00
Total—Completing Specifications	51.65

Indorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's -113. Filed June 1, 1938. Walter B. Maling, Clerk. By Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT X-114

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA.

Cost of Operations of
t Highway District No. 13 of the State of California
May 25, 1936, to November 30, 1937.

eering Pay Roll—Monthly Roll	$100,340.21
and Legal Pay Roll—Monthly Roll	21,000.50
nance and Watchmen—Weekly Pay Roll	3,745.49
als, Supplies and Expenses	26,372.75
tal Costs of Operations	$151,458.95

(555 Days Included in Above Period)

verage Cost Per Day During Above Period $272.899)

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

Detail of Charges for Services—From Monthly Pay Roll—May 25, 1936 to November 30, 1937

PERIOD COVERED: Engineering Services:	CHECKS ISSUED	Total Monthly Pay Roll	Accounted for Herein	Protection and Maintenance: Watchmen, Etc.	Protection and Maintenance: Engineering Services	Measuring Work	Completing Specifications	Other Exclusions
Year 1936								
May 25 to 31st	1861 - 1889	1,426.75	1,426.75					
Month of June,	1935 & 1936 &							
June,	1965 - 1994	6,608.82	4,135.57	108.36	461.60	1,185.47		717.82
July,	2465 - 2489	6,586.25	2,570.31	690.35	1,322.88	1,965.06	37.65	
August,	2640 - 2663	6,259.25	4,063.27	687.90	1,004.82	489.26	14.00	
September,	2800 - 2819	5,916.75	4,363.87	633.20	919.68			
October,	2943 - 2962	5,951.00	4,804.79	300.00	846.21			
November,	3078 - 3099	5,272.00	5,017.00		255.00			
December,	3142 and							
December,	3156 - 3179	5,475.75	5,475.75					
Year 1937								
Month of January,	3231 - 3254	5,946.25	5,946.25					
February,	3306 - 3329	6,029.75	6,029.75					
March,	3396 - 3420	6,289.00	6,289.00					
April,	3478 - 3504	6,677.20	6,677.20					
May,	3561 - 3589	7,117.15	7,117.15					
June,	3667 - 3692	6,629.50	6,629.50					
July,	3755 - 3780	6,681.25	6,681.25					
August,	3875 - 3897	6,088.00	6,088.00					
September,	3972 - 3991	5,488.00	5,488.00					
October,	4063 - 4085	5,820.30	5,820.30					
November,	3078 - 3099	5,716.50	5,716.50					
Totals		111,979.47	100,340.21	2,419.81	4,810.19	3,639.79	51.65	717.82
Office and Legal Services:								
Year 1936								
May 25 to 31st	1890 - 1894	230.00	230.00					
Month of June,	1995 - 2003	1,178.00	1,178.00					
July,	2490 - 2497	2,573.75	1,150.00					1,423.75
August,	2564 - 2671	2,412.50	1,282.50					1,130.00
September,	2820 - 2827	2,308.75	1,183.75					1,125.00
October,	2963 - 2969	2,277.50	1,142.50					1,135.00
November,	3100 - 3106	2,255.00	1,135.00					1,120.00
December,	3180 - 3186	2,275.00	1,145.00					1,130.00
Year 1937								
Month of January,	3255 - 3261	2,262.50	1,137.50					1,135.00
February,	3230 - 3236	2,247.50	1,132.50					1,115.00
March,	3421 - 3427	2,290.00	1,155.00					1,135.00
April,	3505 - 3511	2,275.00	1,145.00					1,130.00
May,	3590 - 3596	2,272.50	1,142.50					1,130.00
June,	3693 - 3699	2,267.50	1,137.50					1,130.00
July,	3781 - 3787	2,272.50	1,142.50					1,130.00

Year 1937								
Month of	January,	3255 - 3261	2,262.50	1,137.50				1,125.00
	February,	3230 - 3236	2,247.50	1,132.50				1,115.00
	March,	3421 - 3427	2,290.00	1,155.00				1,135.00
	April,	3505 - 3511	2,275.00	1,145.00				1,130.00
	May,	3590 - 3596	2,272.50	1,142.50				1,130.00
	June,	3693 - 3699	2,267.50	1,137.50				1,130.00
	July,	3781 - 3787	2,272.50	1,142.50				1,130.00
	August,	3898 - 3904	2,275.00	1,145.00				1,130.00
	September,	3792 - 3798	2,261.25	1,141.25				1,120.00
	October,	4086 - 4092	2,272.50	1,142.50				1,130.00
	November,	3100 - 3106	2,257.50	1,132.50				1,125.00
Totals			40,464.25	21,000.50				19,463.75

JOINT HIGHWAY DISTRICT #13
OF THE STATE OF CALIFORNIA

Detail of Charges for Services—From Weekly Payroll—
May 25, 1936 to Nov. 30, 1937

DESCRIPTION					
Week Ending	Checks Issued	Total Weekly Payrolls	Accounted For Herein	Protection & Maintenance	Other Included Items
5/30/36	2041 - 2062	$ 318.00			$ 318.00
6/ 6/36	2069 - 2077	308.06			308.06
6/13/36	2079 - 2086	301.08			301.08
6/20/36	2087 - 2095	108.38			108.38
6/20/36	1937 - 1964	578.36		578.36	
6/27/36	2020 - 2050	734.84		734.84	
7/ 4/36	2068 - 2170	2,283.81		2,283.81	
7/11/36	2202 - 2304	2,787.00		2,787.00	
7/18/36	2313 - 2408	2,978.15		2,978.15	
7/25/36	2434 - 2457	1,126.92		1,126.92	
8/ 1/36	2510 - 2531	806.52		806.52	
8/ 8/36	2557 - 2578	814.52		814.52	
8/15/36	2580 - 2600	816.52		816.52	
8/22/36	2601 - 2623	829.12		829.12	
8/29/36	2672 - 2688	676.52		676.52	
9/ 5/36	2714 - 2729	625.34		625.34	
9/12/36	2731 - 2746	631.34		631.34	
9/19/36	2764 - 2779	631.34		631.34	
9/26/36	2785 - 2799	570.84		570.84	
10/ 3/36	2844 - 2862	692.84		692.84	
10/10/36	2873 - 2892	726.44		726.44	
10/17/36	2893 - 2913	720.84		720.84	
10/24/36	2920 - 2936	615.84		615.84	
10/31/36	2970 - 2986	575.45		575.45	
11/ 7/36	3021 - 3036	569.50		569.50	
11/14/36	3037 - 3052	374.60	221.80	152.80	
11/21/36	3059 - 3063	224.00	224.00		
3/27/37	2109 - 2114	92.00			92.00
6/ 5/37	2125 - 2126	60.00			60.00
6/ 5/37	3641 - 3645	72.00	72.00		
6/12/37	3648 - 3647	80.25	80.25		
6/19/37	3654 - 3655	48.00	48.00		
6/26/37	3663 - 3666	70.80	70.80		

DESCRIPTION Week Ending	Checks Issued	Total Weekly Payrolls	Accounted For Herein	Protection & Maintenance	Other Excluded Items
7/ 3/37	3732 - 3733	48.00	48.00		
7/10/37	3739 - 3741	71.00	71.00		
7/17/37	3745 - 3746	48.00	48.00		
7/24/37	3751 - 3752	48.00	48.00		
7/31/37	3796 - 3797	82.40	82.40		
8/ 7/37	3828 - 3832	119.60	119.60		
8/14/37	3839 - 3855	216.19	216.19		
8/21/37	3860 - 3865	164.75	164.75		
8/28/37	3867 - 3869	90.00	90.00		
9/ 4/37	3946 - 3949	97.50	97.50		
9/11/37	3950 - 3954	108.00	108.00		
9/18/37	3957 - 3962	108.50	108.50		
9/25/37	3969 - 3971	96.00	96.00		
10/ 2/37	4020 - 4023	93.00	93.00		
10/ 9/37	4037 - 4039	72.00	72.00		
10/16/37	4043 - 4049	156.00	156.00		
10/23/37	4050 - 4055	252.00	252.00		
10/30/37	4098 - 4103	252.00	252.00		
11/ 6/37	4138 - 4145	281.26	252.00		29.26
11/13/37	4145 - 4159	252.00	252.00		
11/20/37	4165 - 4183	401.70	401.70		
Totals		25,907.12	3,745.49	20,944.85	1,216.78

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	May, 1936, Vouchers				
1085	Herb Dana & Company	Insurance on Instruments	31.97		31.97
1106	Electric Blue Print & Photo Co.	Plumb Bobs	2.06		2.06
1107	F. Bruce Maiden & Co.	Office Rent	100.00		100.00
1111	Wallace B. Boggs	May Expenses	68.20	61.40	6.80
1112	J. W. Barkley	" "	78.73	61.23	17.50
1113	M. C. Collins	" "	23.35	18.70	4.65
1114	John R. Hunter	" "	19.18	16.18	3.00
1115	A. R. Ahlgren	Comptroller's Bond	50.00		50.00
1117	Romaine W. Myers	Services	262.50		262.50
1121	E. H. Frisell	May Expenses	59.80	48.40	11.40
1125	Alhambra Water Company	Water Service	8.75		8.75
1126	Brotherton, Thomas & Co.	Accounting Services	75.00		75.00
1127	H. B. Campbell	May Expenses	16.70	12.00	4.70
1129	R. J. Driggs	" "	10.60	8.40	2.20
1130	George Hammer	" "	28.00	22.00	6.00
1131	L. W. Hunt	" "	24.50	18.80	5.70
1132	H. W. Kay	" "	17.40	14.80	2.60
1133	C. E. Riggs	" "	22.00	17.20	4.80
1135	J. M. Loomer	" "	17.10	12.90	4.20
1136	J. A. Morin	" "	18.00	14.40	3.60

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	June, 1936, Vouchers				
1148	Associated Oil Company	Oil, Gasoline & Kerosene	15.06		15.06
1149	Braun-Knecht-Heiman Co.	Chapman Flask	5.41		5.41
1152	East Bay Mun. Utility Dist.	Water Service	4.09		4.09
1154	E. B. Field Co.	Automobile Insurance	95.49		95.49
1155	Goodyear Glove Rubber Footwear	Rubber Boots	19.27		19.27
1157	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1158	Charles R. Mulgrew	Envelopes	10.30		10.30
1160	Pac. Tel. & Tel. Co.	Telephone Service	78.03		78.03
1161	C. E. Riggs	June Expenses	16.10		16.10
1162	Smith Bros.	Stationery	39.69		39.69
1164	Brotherton, Thomas & Co.	Accounting Services	35.00		35.00
1165	Commercial & Photo View Co.	Prints	97.96		97.96
1166	Dieterich-Post Co.	Blue Prints and Ink	5.26		5.26
1167	East Bay Blue Print & Supply Co.	Blue Print Paper	2.87		2.87
1168	Gilson Electric Supply Co.	Flash Lights, Cells, Flash Lamps	66.78		66.78
1180	State Compensation Insurance Fund	Workmen's Compensation Insurance	476.04	353.61	122.43

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	July, 1936, Vouchers				
1182	Associated Stationers	Install Lock on File Drawer	3.86		3.86
1183	Camera Corner	Films, Finishing, and Kodak Work	13.59		13.59
1188	Romaine W. Myers	Services	385.00		385.00
1189	Pac. Gas & Electric Co.	Light Service	.44		.44
1190	Pac. Tel. & Tel. Co.	Telephone Service	6.78		6.78
1191	Pacific Rotaprinting Co.	Printing 1000 Forms	8.76		8.76
1193	Zellerbach Paper Co.	Towels	3.86		3.86
1194	Wallace B. Boggs	June Expenses	66.33		66.33
1195	J. W. Barkley	" "	75.24		75.24
1196	M. C. Collins	" "	38.15		38.15
	Totals Forwarded		2,618.20	680.02	1,938.18
	Totals Brought Forward		2,618.20	680.02	1,938.18
1197	E. H. Frisell	June Expenses	53.10		53.10
1198	John R. Hunter	" "	62.07		62.07
1200	H. B. Campbell	" "	12.00		12.00

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1201	D. W. Chase	" "	2.00		2.00
1202	A. S. Gelston	" "	23.34		23.34
1203	George Hammer	" "	29.30		29.30
1204	L. W. Hunt	" "	12.80		12.80
1205	John M. Loomer	" "	17.00		17.00
1206	J. A. Morin	" "	18.50		18.50
1207	E. W. Ray	" "	10.40		10.40
1214	R. J. Driggs	" "	5.00		5.00
1220	Campus Text Book Exchange	Quadrille Ruled Paper	20.60		20.60
1222	H. M. Lawrence	Ford Repairs	2.27		2.27
1229	F. Bruce Maiden & Co.	Office Room	115.00		115.00
1231	Pac. Tel. & Tel. Co.	Telephone Service	102.77		102.77
1234	Associated Stationers	Erasers	1.13		1.13
1235	Camera Corner	Finishing, Films	9.83		9.83
1237	East Bay Blue Print & Supply Co.	Plumb Bobs, Level Rod Strip, Paper	9.27		9.27
1238	Les C. Firestine Automobile Repairs	Automobile Repairs	.85		.85
1244	Pac. Tel. & Tel. Co.	Tel. Service	1.97		1.97
1245	Smith Bros.	Stationery and Office Supplies	24.37		24.37

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — **May 25, 1936 to November 30, 1937**

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	August, 1936, Vouchers				
1248	Wallace B. Boggs	July Expenses	23.60		23.60
1249	J. W. Barkley	" "	68.15		68.15
1250	H. B. Campbell	" "	11.40		11.40
1251	D. W. Chase	" "	1.00		1.00
1252	M. C. Collins	" "	23.95		23.95
1253	A. S. Gelston	" "	20.00		20.00
1254	George Hammer	" "	22.50		22.50
1255	L. W. Hunt	" "	15.00		15.00
1256	John R. Hunter	" "	30.89		30.89
1257	John A. Morin	" "	5.60		5.60
1258	J. M. Loomer	" "	12.20		12.20
1260	Wallace B. Boggs	Postage	25.00		25.00
1262	Dietrich-Post Co.	Blue Prints and Paper	5.90		5.90
1268	Romaine W. Myers	Services	350.00		350.00
1278	H. S. Crocker & Co., Inc.	Payroll Sheets	2.58		2.58
1279	C. C. Cook	Repair to Heater	3.00		3.00
1280	R. J. Driggs	July Expenses	1.00		1.00
1281	East Bay Mun. Utility Dist.	Water Service	5.56		5.56

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1282	Gilson Electric Supply Co.	Mazda Bulbs	2.78		2.78
1283	E. Bruce Maiden Co.	Office Room	115.00		115.00
1285	Pac. Tel. & Tel. Co.	Telephone Service	79.93		79.93
1286	Pac. Tel & Tel. Co.	" "	4.85		4.85
1288	East Bay Utility Dist.	Water Service	2.71		2.71
1289	Brotherton, Thomas Co.	Accounting Services	125.00		125.00
1290	Pac. Tel. & Tel. Co.	Telephone Service	6.25		6.25
1291	Associated Oil Co.	Oil and Gasoline	26.84		26.84
1293	Camera Corner	Finishing Films	3.96		3.96
1295	Dietrich-Post Co.	Paper and Sketch Board	7.44		7.44
	Totals Forwarded		4,153.86	680.02	3,473.84
	Totals Brought Forward		4,153.86	680.02	3,473.84
1299	Romaine W. Myers	Services	105.00		105.00
1302	Smith Brothers	Stationery and Office Supplies	74.97		74.97
1303	J. W. Barkley	August Expense	65.70		65.70
1304	M. C. Collins	" "	24.60		24.60
1305	A. S. Gelston	" "	7.25		7.25

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1306	George Hammer	" "	12.70		12.70
1307	John R. Hunter	" "	31.59		31.59
1308	K. C. Pansford	" "	5.20		5.20
1309	Ruth W. Veal	Telephone Service	7.15		7.15
	September, 1936, Vouchers				
1317	East Bay Blue Print & Supply Co.	Paper	2.78		2.78
1321	Pacific Tel. & Tel. Co.	Telephone Service	6.35		6.35
1322	Wallace B. Boggs	August Expense	105.62	63.82	41.80
1327	Inter-City Printing Co.	Printing Contracts	125.97		125.97
1335	Pacific Tel. & Tel. Co.	Telephone Service	141.42		141.42
1337	Associated Oil Company	Oils and Gasoline	33.02		33.02
1339	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1340	John M. Olney	Repairs to Ford	16.82		16.82
1342	Dietereich-Post Co.	Paper and Blue Prints	7.61		7.61
1343	Inter-City Printing Co.	Printing Bidders' Statements	11.64		11.64
1345	Romaine W. Myers	Services	210.00		210.00
1347	Pacific Tel. & Tel. Co.	Telephone Services	5.50		5.50
1348	Zellerbach Paper Co.	Towels	3.86		3.86

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1349	J. W. Barkley	September Expense	64.73		64.73
1350	M. C. Collins	" "	27.80		27.80
1351	John R. Hunter	" "	31.25		31.25
1352	John A. Morin	" "	6.00		6.00
	October, 1936, Vouchers				
1353	Wallace B. Boggs	September Expense	70.81		70.81
1354	A. S. Gelston	" "	6.60		6.60
1355	George Hammer	" "	19.40		19.40
1360	H. M. Lawrence	Ford Repairs	31.26		31.26
1361	Pacific Tel. & Tel. Co.	Telephone Services	5.65		5.65
1364	Gelston Electric Supply Co.	Unit Cells	24.47		24.47
1366	Smith Brothers	Stationery and Office Supplies	24.98		24.98
1369	Inter-City Printing Co.	Printing Contract Blanks	118.45		118.45
1371	Pacific Tel. & Tel. Co.	Telephone Service	79.90		79.90
1375	Alhambra Water Co.	Water and Cups	11.33		11.33
1379	Bruce Maiden & Co.	Office Rent	115.00		115.00
1380	Monroe Calculating Mach. Co.	Repairs to Calculator	12.00		12.00
1384	Associated Oil Company	Gasoline and Oils	38.33		38.33

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1386	Camera Corner	Films and Developing	9.99		9.99
1388	East Bay Blue Print & Supply Co.	Spads	25.96		25.96
1389	Gilson Electrical Supply Co.	Lamp Bulbs	3.71		3.71
	Totals Forwarded		6,001.23	743.84	5,257.39
	Totals Brought Forward		6,001.23	743.84	5,257.39
1390	Harms & Morse	Paper	3.30		3.30
1392	Pacific Tel. & Tel. Co.	Telephone Service	6.10		6.10
1393	Smith Bros.	Stationery, and Office Supplies	25.69		25.69
1395	J. W. Barkley	October Expenses	62.29		62.29
1396	M. C. Collins	" "	22.50		22.50
1397	John R. Hunter	" "	24.17		24.17
1398	A. S. Gelston	" "	4.80		4.80
1400	Romaine W. Myers	Services	210.00		210.00
	November, 1936, Vouchers				
1402	Wallace B. Boggs	October Expenses	26.28		26.28
1403	George Hammer	" "	26.60		26.60

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1405	Pacific Tel. & Tel. Co.	Telephone Service	4.95		4.95
1406	Pacific Rotaprinting Co.	Printing Forms	18.29		18.29
1416	Wallace B. Boggs	Postage	25.00		25.00
1418	Harris & Evey, Inc.	Non-Ownership Auto Ins.	220.72		220.72
1422	Les C. Firestine	Ford Repairs	9.28		9.28
1423	Gilson Electrical Supply Co.	Unit Cells	24.47		24.47
1424	Hercules Equipment & Rubber Co.	Rubber Coats	37.08		37.08
1426	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1427	Pacific Tel. & Tel. Co.	Telephone Service	64.40	29.75	34.65
1429	Associated Oil Co.	Gasoline & Oil	28.67		28.67
1430	State Compensation Ins. Fund	Compensation Insurance	430.00		430.00
1431	Camera Corner	Developing Films	366.00		366.00
1432	Inter-City Co.	Printing Contracts	592.00		592.00
1434	Smith Bros.	Stationery and Office Supplies	35.84		35.84
1437	Wallace B. Boggs	November Expenses	30.50		30.50
1438	J. W. Barkley	" "	56.56		56.56
1439	M. C. Collins	" "	19.50		19.50
1440	John R. Hunter	" "	16.46		16.46
1441	H. B. Campbell	" "	8.40		8.40
1442	A. S. Gelston	" "	5.85		5.85
1445	Romaine W. Myers	Services	280.00		280.00

[illegible]	Romaine W. Myers	Services	280.00		280.00

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	December, 1936, Vouchers				
1448	East Bay Blue Print & Supply Co.	Rules and Tracing Paper	9.09		9.09
1452	George Hammer	November Expenses	29.50		29.50
1455	Pacific Tel. & Tel. Co.	Telephone Services	17.24		17.24
1458	Inter-City Co.	Printing Parts of Contracts	33.42		33.42
1460	Zellerbach Paper Co.	Paper Towels	3.86		3.86
1468	Les C. Firestine	Ford Repairs	8.27		8.27
1469	Pacific Tel. & Tel. Co.	Telephone Service	78.01		78.01
1472	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1475	Railway Express Agency	Express Charges	1.87		1.87
1476	Compton's Electric	Repairs to Heater	3.00		3.00
1477	Pacific Tel. & Tel. Co.	Telephone Services	6.70		6.70
1483	Associated Oil Co.	Gasoline & Oil	39.83		39.83
1484	Wallace B. Boggs	Postage	25.00		25.00
1485	Camera Corner	Finishing Films	5.41		5.41
1487	C. C. Cook	Repairs to Heater	3.00		3.00
	Totals Forwarded		8,232.71	773.59	7,459.12

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	Totals Brought Forward		8,232.71	773.59	7,459.12
1488	Inter-City Printing Co.	Page 1 of Contract	7.42		7.42
1489	Pacific Tel. & Tel. Co.	Telephone Service	8.24		8.24
1493	Romaine W. Myers	Services	175.00		175.00
1495	J. W. Barkley	December Expense	53.74		53.74
1496	M. C. Collins	" "	16.20		16.20
1497	A. S. Gelston	" "	5.30		5.30
1498	George Hammar	" "	28.40		28.40
1499	John R. Hunter	" "	15.41		15.41
1505	East Bay Blue Print & Supply Co.	Paper, Rings and Binders	11.45		11.45
1507	Smith Brothers	Stationery and Office Supplies	19.22		19.22
1508	Wallace B. Boggs	December Expense	59.21		59.21
	January, 1937, Vouchers				
1513	State Compensation Ins. Fund.	Compensation Insurance	1,833.94		1,833.94
1516	Gilson Electrical Supply Co.	Flash Lights and Bulbs	39.96		39.96
1517	Harms and Morse	Paper and Cord	2.32		2.32
1520	Pacific Tel. & Tel. Co.	Telephone Service	68.02		68.02
1521	Ruth W. Veal	Telephone	5.00		5.00

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1523	Associated Stationers	Stationery	49.96		49.96
1525	Camera Corner	Developing	4.69		4.69
1528	Keelox Manufacturing Co.	Carbon Paper	2.06		2.06
1529	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1531	Pacific Tel. & Tel. Co.	Telephone Service	6.42		6.42
1532	Pacific Tel. & Tel. Co.	Telephone Service	7.00		7.00
1533	Smith Brothers	Stationery	82.50		82.50
1534	Wallace B. Boggs	January Expense	26.25		26.25
1535	J. W. Barkley	" "	57.40		57.40
1536	M. C. Collins	" "	54.45		54.45
1537	E. H. Frisell	" "	27.20		27.20
1538	John R. Hunter	Services	69.89		69.89
1540	Romaine W. Myers	January Expense	350.00		350.00
1547	A. S. Gelston	January Expense	5.46		5.46
1548	H. B. Campbell	January Expense	17.70		17.70
1549	George Hammer		21.50		21.50

JOINT HIGHWAY DISTRICT NO 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	February, 1937, Vouchers				
1556	Braun-Knecht-Heimann Co.	Chapman Flask	5.36		5.36
1557	Compton Electric	Repairs to Heater	3.75		3.75
1559	L. W. Hunt	January Expense	43.15		43.15
1563	John M. Olney	Ford Repairs	69.86		69.86
1566	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1567	Gilsons Electrical Supply Co.	Unit Calls	24.47		24.47
1569	Pacific Tel. & Tel. Co.	Telephone Service	77.65		77.65
1570	Zellerbach Paper Co.	Towels and Paper	7.55		7.55
1575	Associated Oil Company	Gasoline and Oil	35.92		35.92
1576	Camera Corner	Developing	18.07		18.07
1578	Dietereich-Post Co.	Repairing Transit	25.00		25.00
1580	Maxwell Hdwe. Co.	Pails, Brushes, Padlocks	4.01		4.01
1581	Pacific Tel. & Tel. Co.	Telephone Service	13.06		13.06
1582	Smith Brothers	Stationery and Office Supplies	76.53		76.53
	Totals Forwarded		11,998.40	773.59	11,224.81

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	Totals Brought Forward		11,998.40	773.59	11,224.81
1583	J. W. Barkley	February Expense	52.20		52.20
1584	H. B. Campbell	" "	23.10		23.10
1585	M. C. Collins	" "	31.35		31.35
1586	E. H. Frizell	" "	46.20		46.20
1587	A. L. Gelston	" "	24.30		24.30
1588	L. W. Hunt	" "	16.90		16.90
1589	John R. Hunter	" "	21.41		21.41
1590	J. A. Morin	" "	6.40		6.40
1596	George Hammer	" "	25.50		25.50
1598	Henry L. Hinman	Telephone and Expense	45.00		45.00
1600	Romaine W. Myers	Services	420.00		420.00
1603	East Bay Blue Print & Supply Co.	Paper and Ink	5.72		5.72
1604	Wallace B. Boggs	February Expense	59.53		59.53
	March, 1937, Vouchers				
1610	Charles R. Hadley Co.	Stationery	8.09		8.09
1612	Inter-City Printing Co.	Printing	13.39		13.39

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1615	Pacific Tel. & Tel. Co.	Telephone Service	21.53		21.53
1616	Pacific Tel. & Tel. Co.	Telephone Service	87.12		87.12
1618	Alhambra Water Co.	Water Service	8.76		8.76
1619	Associated Oil Company	Gasoline and Oil	6.35		6.35
1620	Wallace B. Boggs	Postage	25.00		25.00
1622	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1623	Gilson Electrical Supply Co.	Lamps	4.33		4.33
1627	Camera Corner	Developing	21.41		21.41
1629	Dietereich-Post Co.	Blue Prints, Level, Paper, Etc.	16.79	3.70	13.09
1631	Romaine W. Myers	Services	595.00		595.00
1632	Pacific Tel. & Tel. Co.	Telephone Service	14.79		14.79
1633	Smith Brothers	Stationery and Office Supplies	14.91		14.91
1634	Wallace B. Boggs	March Expense	26.30		26.30
1635	J. W. Barkeley	" "	66.50		66.50
1636	H. B. Campbell	" "	25.10		25.10
1637	M. C. Collins	" "	44.10		44.10
1638	A. S. Gelston	" "	12.30		12.30

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1639	George Hammer	March Expense	31.10		31.10
1640	John R. Hunter	" "	30.08		30.08
1641	J. A. Morin	" "	15.20		15.20
1642	K. E. Ponsford	" "	6.00		6.00
1643	D. W. Chase	" "	14.20		14.20
1644	L. W. Hunt	" "	20.60		20.60
1645	East Bay Blue Print & Supply Co.	Level Books, Tape Line	21.78		21.78
	April, 1937, Vouchers				
1656	E. H. Frizell	March Expense	68.50		68.50
1657	Harris and Evey, Inc.	Automobile Insurance	70.07		70.07
1660	John M. Olney	Repairs to Ford	9.20		9.20
1663	Les. C. Firestine	Repairs to Ford	6.15		6.15
1664	Harms & Morse, Inc.	Cards and Papers	2.32		2.32
1665	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1667	Pacific Tel. & Tel. Co.	Telephone Service	87.10		87.10
	Totals Forwarded		14,400.08	777.29	13,622.79

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	Totals Brought Forward		14,400.08	777.29	13,622.79
1671	Compton's Electric	Repair to Heater	3.75		3.75
1673	Gilson Electric Supply Co.	Unit Cells	24.47		24.47
1674	Zellerbach Paper Co.	Towels	7.11		7.11
1675	Braun-Knecht-Heiman Co.	Flasks, Plates, Etc.	26.83		26.83
1676	Camera Corner	Developing	3.96		3.96
1677	Maxwell Hardware Co.	Buckets	2.78		2.78
1678	John M. Olney	Repairing Ford	4.55		4.55
1679	Pacific Tel. & Tel. Co.	Telephone Service	16.43		16.43
1680	Smith Brothers	Stationery and Office Supplies	33.41		33.41
1681	Associated Oil Company	Gasoline and Oil	35.91		35.91
1684	Brotherton, Thomas & Company	Accounting Services	175.00		175.00
1687	Dietereich-Post Co.	Blue Prints and Chain Line	17.56	1.24	16.32
1689	J. W. Barkley	April Expense	56.30		56.30
1690	D. W. Chase	" "	17.60		17.60
1691	M. C. Collins	April Expense	40.70		40.70
1692	E. H. Frizell	" "	58.90		58.90
1693	A. S. Gelston	" "	17.70		17.70

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1694	L. W. Hunt	April Expense	49.30		49.30
1695	John R. Hunter	" "	7.05		7.05
1696	J. A. Morin	" "	40.30		40.30
1697	H. B. Campbell	" "	17.50		17.50
1698	George Hammer	" "	28.60		28.60
1701	Romaine W. Myers	Services	490.00		490.00
	May, 1937, Vouchers				
1713	Wallace B. Boggs	April Expense	69.52	42.50	27.02
1714	Braun-Knecht-Heimann Co.	Chapman Flask	5.36		5.36
1719	Pacific Rotaprinting Co.	Printing Forms	72.10		72.10
1722	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1723	Arthur R. Ahlgren	Comptroller's Bond	50.00		50.00
1724	Herb Dana	Surveyor's Instruments Ins.	31.97		31.97
1725	Pacific Tel. & Tel. Co.	Telephone Service	73.00		73.00
1729	Associated Oil Company	Gasoline and Oil	12.43		12.43
1730	Brotherton, Thomas & Company	Accounting Service	75.00		75.00
1733	Herb Dana	Treasurer's Bond	500.00		500.00
1734	Dieterich-Post Co.	Blue Prints, Books, Tape	11.46	.52	10.94

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1735	East Bay Blue Print & Supply Co.	Blue Prints, Level Book	1.83	.72	1.11
1736	Maxwell Hdwe. Co.	Locks, Hammers, Level	14.74		14.74
1737	Pacific Tel. & Tel. Co.	Telephone Service	20.88		20.88
1738	Smith Brothers	Stationery and Office Supplies	57.89		57.89
1740	J. W. Barkley	May Expense	65.20		65.20
1741	D. W. Chase	" "	16.05		16.05
1742	M. C. Collins	" "	29.90		29.90
1743	John B. Hunter	" "	31.88		31.88
1744	J. A. Morin	" "	66.00		66.00
1745	K. E. Ponsford	" "	11.00		11.00
1749	Romaine W. Myers	Services	420.00		420.00
1750	Les. C. Firestine	Repair to Ford	8.61		8.61
1751	Oakland Blue Print Co.	Blue Prints	72.07		72.07
1752	A. S. Gelston	May Expense	28.05		28.05
1753	George Hammer	May Expense	29.70		29.70
	Totals Forwarded		17,465.43	822.27	16,643.16

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	Totals Brought Forward		17,465.43	822.27	16,643.16
1754	E. W. Ray	May Expense	10.30		10.30
1757	Pacific Rotaprinting Co.	Printing	8.45		8.45
1758	Wallace B. Boggs	May Expense	38.30		38.30
1759	E. H. Frisell	" "	69.90		69.90
1760	L. W. Hunt	" "	41.10		41.10
	June, 1937, Vouchers				
1777	Pacific Tel. & Tel. Co.	Telephone Service	83.10		83.10
1778	Les C. Firestine	Repair Ford	2.41		2.41
1780	Associated Stationers	Service Sheets	2.22		2.22
1781	Wallace B. Boggs	Postage	25.00		25.00
1783	E. B. Field Company	Ford Sedan Insurance	92.99		92.99
1784	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1787	Associated Oil Co.	Gasoline and Oil	13.74		13.74
1789	Gilson Electrical Supply Co.	Unit Cells	23.76		23.76
1791	Brotherton Thomas & Co.	Accounting Services	65.00		65.00
1792	Camera Corner	Developing Films	8.29		8.29

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — **May 25, 1936 to November 30, 1937**

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1793	Dieterich-Post Co.	Cross Section Paper	2.58		2.58
1794	Maxwell Hardware Co.	Jars	.81		.81
1795	Romaine W. Myers	Services	560.00		560.00
1797	Pacific Tel. & Tel. Co.	Telephone Service	15.34		15.34
1798	Smith Bros.	Stationery and Office Supplies	17.11		17.11
1799	Ruth W. Veal	Telephone Service	5.00		5.00
1800	Wallace B. Boggs	June Expenses	58.18		58.18
1801	J. W. Barkley	" "	64.40		64.40
1802	Walter B. Berger	" "	11.30		11.30
1803	M. C. Collins	" "	43.80		43.80
1804	George Hammer	" "	30.30		30.30
1805	John R. Hunter	" "	16.65		16.65
1806	K. E. Ponsford	May and June Expenses	9.00		9.00
1807	D. W. Chase	June Expenses	13.15		13.15
1808	A. S. Gelston	" "	22.80		22.80
1809	L. W. Hunt	" "	53.60		53.60
1810	E. W. Ray	" "	8.80		8.80
1812	E. H. Frisell	" "	81.20		81.20

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	July, 1937, Vouchers				
1823	J. A. Morin	June Expenses	49.70		49.70
1827	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1830	Pacific Tel. & Tel. Co.	Telephone Service	69.35		69.35
1833	Associated Oil Co.	Gasoline and Oil	45.54		45.54
1834	Camera Corner	Printing Pictures	3.40		3.40
1836	Dieterich-Post Co.	Field Book	6.18		6.18
1837	East Bay Blue Print and Supply Co.	Draughting Sheets	1.55		1.55
1838	Pacific Tel. & Tel. Co.	Telephone Service	15.80		15.80
1839	Smith Brothers	Stationery and Office Supplies	4.30		4.30
1840	K. E. Ponsford	July Expenses	8.80		8.80
1842	Brotherton, Thomas & Co.	Accounting Services	25.00		25.00
1843	East Bay Blue Print & Supply Co.	Tape Line	13.08		13.08
1845	J. W. Barkley	July Expenses	57.62		57.62
	Totals Forwarded		19,494.33	822.27	18,672.06

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	Totals Brought Forward		19,494.33	822.27	18,672.06
1846	D. W. Chase	July Expense	12.50		12.50
1847	M. C. Collins	" "	31.00		31.00
1848	A. S. Gelston	" "	8.88		8.88
1849	John R. Hunter	" "	26.18		26.18
1850	W. B. Berger	" "	27.50		27.50
1851	L. W. Hunt	" "	39.10		39.10
1852	J. A. Morin	" "	45.10		45.10
1853	Wallace B. Boggs	" "	72.45	58.75	13.70
1854	E. H. Frizell	" "	88.10		88.10
1857	Romaine W. Myers	Services	525.00		525.00
1859	Pacific Rotoprinting Co.	Stationery	17.77		17.77
	August, 1937, Vouchers				
1867	George Hammer	July Expense	26.60		26.60
1868	Harms & Morse	Paper	2.06		2.06
1872	Railway Express Agency	Express	2.06		2.06
1877	Pacific Tel. & Tel. Co.	Telephone Service	77.28		77.28

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1878	Associated Oil Company	Gasoline and Oil	43.12		43.12
1880	J. Bruce Maiden & Co.	Office Rent	115.00		115.00
1881	Pacific Tel. & Tel. Co.	Telephone Service	20.76		20.76
1884	Brotherton, Thomas & Company	Accounting Service	117.50		117.50
1886	Dieterich-Post Co.	Blue Prints and Cloth	14.58	2.22	12.36
1888	Gilson, Electrical Supply Co.	Lamp Bulbs	.68		.68
1889	D. A. Lietz Co.	Shade Glass	.92		.92
1890	Maxwell Hdwe. Co.	Brush Hoods	5.46		5.46
1891	Smith Brothers	Stationery and Office Supplies	7.59		7.59
1892	K. E. Ponsford	August Expense	16.50		16.50
1893	John R. Hunter	" "	8.99		8.99
1894	Wallace B. Boggs	" "	101.80	44.40	57.40
1895	J. W. Barkley	" "	58.40		58.40
1896	A. S. Gelston	" "	7.23		7.23
1897	M. C. Collins	" "	39.60		39.60
1898	George Hammer	" "	26.30		26.30
1899	W. B. Berger	" "	12.60		12.60

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1900	Camera Corner	Developing	8.19		8.19
1903	C. L. Geyman	August Expense	3.80		3.80
1904	E. H. Frizell	" "	43.30		43.30
1905	L. W. Hunt	" "	18.80		18.80
1906	J. A. Morin	" "	45.60		45.60
1909	Romaine W. Myers	Services	560.00		560.00
1911	Pacific Rotoprinting Co.	Printing	7.73		7.73
	September, 1937, Vouchers				
1920	D. W. Chase	August Expense	13.40		13.40
1925	Wallace B. Boggs	Postage	25.00		25.00
1928	Pacific Tel. & Tel. Co.	Telephone Service	81.61		81.61
1930	Associated Oil Company	Gasoline and Oil	12.54		12.54
1931	F. Bruce Maiden Co.	Office Rent	115.00		115.00
1932	Smith Brothers	Stationery and Office Supplies	20.63		20.63
1934	Camera Corner	Developing	4.89		4.89
	Totals Forwarded		22,053.43	927.64	21,125.79

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — **May 25, 1936 to November 30, 1937**

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	Totals Brought Forward		22,053.43	927.64	21,125.79
1937	Gilson Electric Supply Co.	Dry Cells and Unit Cells	22.43		22.43
1938	Romaine W. Myers	Services	595.00		595.00
1940	Pacific Tel. & Tel. Co.	Telephone Service	17.87		17.87
1941	Wallace B. Boggs	September Expenses	72.45	37.25	35.20
1942	J. W. Barkley	" "	62.62		62.62
1943	M. C. Collins	" "	34.85		34.85
1944	K. E. Ponsford	" "	20.00		20.00
1945	George Hammer	" "	56.20		56.20
1946	W. B. Berger	" "	5.80		5.80
1947	John R. Hunter	" "	5.33		5.33
1948	A. S. Gelston	" "	8.25		8.25
1949	J. A. Morin	" "	38.30		38.30
1951	D. W. Chase	" "	3.25		3.25
1952	C. L. Geyman	" "	3.40		3.40

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	October, 1937, Vouchers				
1961	L. W. Hunt	September Expenses	27.40		27.40
1970	Les C. Firestine	Ford Repair	.55		.55
1971	E. H. Frisell	September Expenses	21.00		21.00
1972	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1973	J. M. Olney	Ford Repair	5.64		5.64
1974	Pacific Tel. & Tel. Co.	Telephone Service	97.69		97.69
1975	Associated Oil Co.	Gasoline and Oil	18.29		18.29
1977	Henry L. Hinman	October Expense	76.00		76.00
1982	East Bay Blue Print and Supply Co.	Rules	3.34		3.34
1983	Pac. Tel. & Tel. Co.	Telephone Services	22.73		22.73
1984	Smith Bros.	Envelopes, Paper	25.91		25.91
1985	K. E. Ponsford	October Expenses	21.70		21.70
1986	John R. Hunter	" "	9.52		9.52
1988	J. W. Barkley	" "	68.39		68.39
1989	M. C. Collins	" "	3.85		3.85
1990	C. L. Geyman	" "	4.00		4.00
1991	Wallace B. Boggs	Postage	25.00		25.00

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1992	Brotherton, Thomas & Co.	Accounting Services	75.00		75.00
1994	Commercial & Photo View Co.	Prints and Slides	77.47		77.47
1998	Romaine W. Myers	Services	595.00		595.00
2001	W. B. Berger	October Expenses	17.50		17.50
2002	H. B. Campbell	" "	35.70		35.70
2003	D. W. Chase	" "	3.10		3.10
2004	W. K. Guthrie	" "	20.90		20.90
2005	George Hammer	" "	62.30		62.30
2006	L. W. Hunt	" "	39.30		39.30
2007	J. A. Morin	" "	10.90		10.90
	November, 1937, Vouchers				
2019	A. S. Gelston	October Expenses	21.10		21.10
2020	E. H. Frisell	" "	23.30		23.30
2021	Les C. Firestine	Ford Repair	5.52		5.52
2024	Gilson Electric Supply Co.	Unit Cells	13.44		13.44
2030	Les C. Firestine	Ford Repair	5.66		5.66
	Totals Forwarded		24,551.38	964.89	23,586.49

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	Totals Brought Forward		24,551.38	964.89	23,586.49
2031	East Bay Blue Print & Supply Co.	Scale and Paper	3.34		3.34
2032	Pac. Tel. & Tel. Co.	Telephone Services	91.26		91.26
2032A	Ruth W. Veal	Telephone Service	5.45		5.45
2033	Harris & Evey, Inc.	Non-Ownership Auto Insurance	127.58		127.58
2035	Railway Express Agency	Express	.93		.93
2036	Associated Oil Co.	Gasoline & Oil	27.64		27.64
2037	Camera Corner	Films	8.91		8.91
2039	Les C. Firestine	Ford Repair	16.99		16.99
2040	W. H. Picard Inc.	Repairing Water Line	65.00		65.00
2041	Smith Bros.	Stationery and Office Suplies	10.35		10.35
	December, 1937, Vouchers				
2046	J. W. Barkley	November Expenses	57.40		57.40
2047	M. C. Collins	" "	7.39		7.39
2048	L. W. Hunt	" "	27.40		27.40
2049	J. A. Morin	" "	7.20		7.20
2050	K. E. Ponsford	" "	3.00		3.00
2051	D. W. Chase	" "	4.10		4.10
2052	George Hammer	" "	54.10		54.10

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses — May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
2053	W. B. Berger	November Expenses	8.00		8.00
2054	H. B. Campbell	" "	15.00		15.00
2055	E. H. Frisell	" "	17.60		17.60
2056	John R. Hunter	" "	13.97		13.97
2062	Pacific Rotaprinting Co.	Printing Forms	33.45		33.45
2063	Pac. Tel. & Tel. Co.	Telephone Service	14.78		14.78
2064	Wallace B. Boggs	November Expenses	78.00		78.00
2065	A. S. Gelston	" "	19.30		19.30
2069	Alhambra Water Co.	Water Service	6.18		6.18
2070	Pacific Tel. & Tel. Co.	Telephone Service	11.85		11.85
2102	State Compensation Insurance Fund	Workmen's Compensation Insurance	2,072.08	91.14	1,980.94
2105	Pacific Tel. & Tel. Co.	Telephone Service	17.62		17.62
2115	Associated Oil Co.	Gasoline & Oil	30.74	16.44	14.30
	January, 1938, Vouchers				
2142	John M. Olney	Ford Repair (September bill)	37.23		37.23
	Totals		27,445.22	1,072.47	26,372.75

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. X-114. Filed June 1, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT X-116.

State of California,
County of Contra Costa—ss.

I, S. C. Wells, County Clerk of the County of Contra Costa, and Ex-Officio Clerk of the Board of Supervisors of the County of Contra Costa, State of California, do hereby certify that the annexed is a full, true and correct copy of a certified copy of a resolution of the Board of Directors of Joint Highway District No. 13 of the State of California, which was delivered to and filed with the Board of Supervisors of the County of Contra Costa, State of California, on the 2nd day of December, 1937, and that the same is now on file with such Board of Supervisors, and a part of the records of said Board.

Dated, this 2nd day of December, 1937.

[Seal of Board of Supervisors]

S. C. WELLS,
County Clerk and Ex-Officio Clerk of the Board of Supervisors of the County of Contra Costa, State of California.

I, Harry N. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the annexed is a full, true and correct copy of the Certificate and Receipt of S. C. Wells, County Clerk of the County of Contra Costa, and ex-officio Clerk of the Board of Supervisors of the

County of Contra Costa, State of California, filed in the records of this District on the 2nd day of December, 1937.

HARRY M. STOW,
Secretary, Joint Highway District No. 13 of the State of California.

[Seal] By B. V. RIORDAN,
Assistant Secretary.

RESOLUTION OF BOARD OF DIRECTORS OF JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA, THAT PROJECT IS COMPLETED; ADOPTED UNDER THE PROVISIONS OF SECTION 32 OF THE "JOINT HIGHWAY DISTRICT ACT."

"Whereas, on the 29th day of November, 1937, Wallace B. Boggs, District Engineer, made and furnished to the Director of Public Works of the State of California, an affidavit and certificate, in writing, showing that the highway, highway tunnels and appurtenances constituting the project of this District, had been constructed, improved and completed in accordance with the plans and specifications and supplements thereto previously adopted therefor; and

Whereas, on the 30th day of November, 1937, the Director of Public Works of the State of California issued and made his certificate, in writing, showing

that the said highway, highway tunnels and appurtenances constituting the project of this District had been duly constructed, improved and completed in accordance with the plans and specifications previously adopted therefor, which said certificate is now on file in the records of this District;

It is hereby resolved that the Board of Directors of Joint Highway District No. 13 of the State of California hereby declare that the project of said Joint Highway District has been duly constructed, improved and completed in accordance with the plans and specifications therefor adopted on the 30th day of March, 1933, and the amendments and supplements thereto adopted on the 9th day of January, 1934, the 3rd day of April, 1934, and the 23rd day of September, 1936, made by Wallace B. Boggs, District Engineer, and now on file in the office of said Joint Highway District, and that the said highway, highway tunnels and appurtenances are now complete and ready for use by the public;

It is hereby further resolved that the secretary or assistant secretary prepare certified copies of this resolution and transmit the same to Earl Lee Kelly, Director of Public Works of the State of California, and to the Boards of Supervisors of the Counties of Alameda and Contra Costa, which said counties comprise the counties within said Joint Highway District."

I, Harry M. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the foregoing is a full, true and correct

copy of a resolution adopted by the unanimous vote of all of the members of the Board of Directors of Joint Highway District No. 13 of the State of California, at a regular meeting of said Board of Directors held on the 1st day of December, 1937.

[Seal] HARRY M. STOW,
Secretary, Joint Highway District No. 13 of the State of California.
By B. V. RIORDAN,
Assistant Secretary.

[Endorsed]: Filed December 2, 1937. Harry M. Stow, Secretary, Joint Highway District No. 13 of the State of California. By B. V. Riordan, Assistant Secretary.

State of California,
County of Alameda—ss.

I, G. E. Wade, County Clerk of the County of Alameda, and Ex-Officio Clerk of the Board of Supervisors of the County of Alameda, State of California, do hereby certify that the annexed is a full, true and correct copy of a certified copy of a resolution of the Board of Directors of Joint Highway District No. 13 of the State of California, which was delivered to and filed with the Board of Supervisors of the County of Alameda, State of California, on the 2nd day of December, 1937, and that

the same is now on file with such Board of Supervisors, and a part of the records of said Board.

Dated, this 2nd day of December, 1937.

G. E. WADE,
County Clerk and Ex-Officio Clerk of the Board of Supervisors of the County of Alameda, State of California,
By J. C. HOLLAND,
Deputy.

[Seal of Board of Supervisors]

I, Harry M. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the annexed is a full, true and correct copy of the Certificate and Receipt of G. E. Wade, County Clerk of the County of Alameda, and ex-officio Clerk of the Board of Supervisors of the County of Alameda, State of California, filed in the records of this District on the 2nd day of December, 1937.

HARRY M. STOW,
Secretary,
Joint Highway District No. 13 of the State of California,
[Seal] By B. V. RIORDAN,
Assistant Secretary.

RESOLUTION OF BOARD OF DIRECTORS OF JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA; THAT PROJECT IS COMPLETED; ADOPTED UNDER THE PROVISIONS OF SECTION 32 OF THE "JOINT HIGHWAY DISTRICT ACT."

"Whereas, on the 29th day of November, 1937, Wallace B. Boggs, District Engineer, made and furnished to the Director of Public Works of the State of California, an affidavit and certificate, in writing, showing that the highway, highway tunnels and appurtenances constituting the project of this District, had been constructed, improved and completed in accordance with the plans and specifications and supplements thereto previously adopted therefor; and

Whereas, on the 30th day of November, 1937, the Director of Public Works of the State of California issued and made his certificate, in writing, showing that the said highway, highway tunnels and appurtenances constituting the project of this District had been duly constructed, improved and completed in accordance with the plans and specifications previously adopted therefor, which said certificate is now on file in the records of this District;

It Is Hereby Resolved that the Board of Directors of Joint Highway District No. 13 of the State of California hereby declare that the project of said Joint Highway District has been duly constructed, improved and completed in accordance with the

plans and specifications therefor adopted on the 30th day of March, 1933, and the amendments and supplements thereto adopted on the 9th day of January, 1934, the 3rd day of April, 1934, and the 23rd day of September, 1936, made by Wallace B. Boggs, District Engineer, and now on file in the office of said Joint Highway District, and that the said highway, highway tunnels and appurtenances are now complete and ready for use by the public;

It Is Hereby Resolved that the secretary or assistant secretary prepare certified copies of this resolution and transmit the same to Earl Lee Kelly, Director of Public Works of the State of California, and to the Boards of Supervisors of the Counties of Alameda and Contra Costa, which said counties comprise the counties within said Joint Highway District."

I, Harry M. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the unanimous vote of all of the members of the Board of Directors of Joint Highway District No. 13 of the State of California, at a regular meeting of said Board of Directors held on the 1st day of December, 1937.

HARRY M. STOW,
Secretary,
Joint Highway District No. 13 of the State of California,

[Seal] By B. V. RIORDAN,
Assistant Secretary.

RESOLUTION OF BOARD OF DIRECTORS OF JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA, THAT PROJECT IS COMPLETED; ADOPTED UNDER THE PROVISIONS OF SECTION 32 OF THE "JOINT HIGHWAY DISTRICT ACT."

"Whereas, on the 29th day of November, 1937, Wallace B. Boggs, District Engineer, made and furnished to the Director of Public Works of the State of California, an affidavit and certificate, in writing, showing that the highway, highway tunnels and appurtenances constituting the project of this District, had been constructed, improved and completed in accordance with the plans and specifications and supplements thereto previously adopted therefor; and

Whereas, on the 30th day of November, 1937, the Director of Public Works of the State of California issued and made his certificate, in writing, showing that the said highway, highway tunnels and appurtenances constituting the project of this District had been duly constructed, improved and completed in accordance with the plans and specifications previously adopted therefor, which said certificate is now on file in the records of this District;

It Is Hereby Resolved that the Board of Directors of Joint Highway District No. 13 of the State of California hereby declare that the project of said Joint Highway District has been duly constructed, improved and completed in accordance with the

plans and specifications therefor adopted on the 30th day of March, 1933, and the amendments and supplements thereto adopted on the 9th day of January, 1934, the 3rd day of April, 1934, and the 23rd day of September, 1936, made by Wallace B. Boggs, District Engineer, and now on file in the office of said Joint Highway District, and that the said highway, highway tunnels and appurtenances are now complete and ready for use by the public;

It Is Hereby Further Resolved that the secretary or assistant secretary prepare certified copies of this resolution and transmit the same to Earl Lee Kelly, Director of Public Works of the State of California, and to the Boards of Supervisors of the Counties of Alameda and Contra Costa, which said counties comprise the counties within said Joint Highway District."

I, Harry M. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the unanimous vote of all of the members of the Board of Directors of Joint Highway District No. 13 of the State of California, at a regular meeting of said Board of Directors held on the 1st day of December, 1937.

HARRY M. STOW,
Secretary,
Joint Highway District No. 13 of the State of California,
[Seal] By B. V. RIORDAN,
Assistant Secretary.

AFFIDAVIT AND CERTIFICATE OF DISTRICT ENGINEER THAT JOINT HIGHWAY DISTRICT PROJECT IS COMPLETE.

State of California,
County of Alameda—ss.

Wallace B. Boggs, being first duly sworn, deposes and says and certifies:

That at all times mentioned herein he was, and now is, the duly appointed, qualified and acting District Engineer of Joint Highway District No. 13 of the State of California;

That the project of said District, which includes a highway, highway tunnels and approaches with appurtenant structures, located partly in the City of Oakland, County of Alameda, State of California, and partly in the County of Contra Costa, State of California, all in said Joint Highway District No. 13 of the State of California, the westerly terminus of said project being located at a point near the intersection of Broadway with Keith Avenue in the said City of Oakland and the easterly terminus of said project being located at a point on the State Highway in Contra Costa County, approximately fourteen hundred feet northerly from the intersection of the Fish Ranch Road with said State Highway, which is commonly known as and called the "Tunnel Road", has been duly constructed, improved and completed in strict accordance with the plans and specifications therefor adopted by the Board of

Directors of said Joint Highway District on the 30th day of March, 1933, and the amendments and supplements to said specifications adopted by the Board of Directors of said District on the 9th day of January, 1934, on the 3rd day of April, 1934, and the 23rd day of September, 1936, all of which said plans and specifications and supplements thereto were approved by the Director of Public Works of the State of California;

That this affidavit and certificate of the undersigned as District Engineer of said Joint Highway District, is made for the purpose of securing a certificate, under the provisions of Section 32 of the Joint Highway District Act of 1931 (Stats. 1931, page 1026), and of a resolution of the State Highway Commission of the State of California adopted July 8, 1933, approving an additional contribution of $400,000 to the cost of the project of said District by the State of California, from the Director of Public Works of the State of California, showing that the project of the District, which has been completed as aforesaid, has been duly constructed, improved and completed in accordance with the plans and specifications previously adopted therefor.

WALLACE B. BOGGS,

Subscribed and sworn to before me this 29th day of November, 1937.

[Notarial Seal] C. E. PAUL,

Notary Public in and for the County of Alameda, State of California.

My Commission expires Oct. 31, 1941.

[Endorsed]: Filed November 29, 1937. Harry M. Stow, Secretary, Joint Highway District No. 13 of the State of California. By B. V. Riordan, Assistant Secretary.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. X-116. Filed June 2, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

CLERK'S COPY.

Vol. IX

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

SIX COMPANIES OF CALIFORNIA, HARTFORD ACCIDENT AND INDEMNITY COMPANY, ET AL., PETITIONERS,

vs.

JOINT HIGHWAY DISTRICT No. 13 OF THE STATE OF CALIFORNIA

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR CERTIORARI FILED JULY 29, 1940.

CERTIORARI GRANTED OCTOBER 14, 1940.

No. 9113

IN THE

United States Circuit Court of Appeals

For the Ninth Circuit

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLEN FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPNY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

PROCEEDINGS HAD IN THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT.

PARKER PRINTING COMPANY, 543 SANSOME STREET, SAN FRANCISCO

United States Circuit Court of Appeals
for the Ninth Circuit

Excerpt from Proceedings of Wednesday, November 15, 1939.

Before: Denman, Mathews and Healy,
Circuit Judges.

[Title of Cause.]

ORDER OF SUBMISSION

Ordered appeal in above cause argued by Messrs. Paul S. Marrin and DeLancey C. Smith, counsel for appellant, Six Companies of California, and by Mr. Jewel Alexander, counsel for appellant Surety Companies, and by Mr. T. P. Wittschen, counsel for appellee Joint Highway District No. 13 of the State of California, and submitted to the court for consideration and decision.

United States Circuit Court of Appeals
for the Ninth Circuit

Excerpt from Proceedings of Thursday, March 14, 1940.

Before: Denman, Mathews and Healy,
Circuit Judges.

[Title of Cause.]

ORDER DIRECTING FILING OF OPINION AND FILING AND RECORDING OF JUDGMENT

By direction of the Court, Ordered that the typewritten opinion this day rendered by this court in above cause be forthwith filed by the clerk, and that a judgment be filed and recorded in the minutes of this court in accordance with the opinion rendered.

[Title of Circuit Court of Appeals and Cause.]

Upon Appeal from the District Court of the United States for the Northern District of California, Southern Division.

OPINION

Before: Denman, Mathews and Healy,
Circuit Judges.

Healy, Circuit Judge.

Six Companies of California, a Nevada corporation, contracted with Joint Highway District No. 13 of the State of California to construct the Broad-

way Tunnel, near Oakland. For convenience these parties will be referred to as the Contractor and the District. After part performance the Contractor attempted to rescind and brought suit to recover the reasonable value of materials and labor theretofore furnished, asserting that the District had breached the contract and had misrepresented the nature of the country through which the tunnel was to be driven.

The District answered, alleged a wrongful abandonment of the contract, and by cross complaint sought damages against the Contractor and its sureties. The court found on all issues in favor of the District, awarding damages in a large sum on the cross complaint. The Contractor and its sureties appeal.

The contract, dated June 4, 1934, was for the construction of two parallel tunnels, together with approaches and appurtenant structures, the tunnels to penetrate the Coast Range between Alameda and Contra Costa counties.[1] Prior to bidding the Contractor was furnished with a copy of the plans and specifications. The specifications, which were made a part of the contract, invited attention to a geological report on file in the office of the District Engineer. The Contractor examined this report and copied a part of it. It also copied an estimate of the cost of the work prepared by the District Engineer, and inspected a test bore and test pits on the ground.

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[1]The total contract price was $3,683,931.

The contract required completion of the work within 720 days from its date; but the specifications contained a clause entitling the Contractor to an extension of time under conditions presently to be stated. There was a provision for liquidated damages in the amount of $500 per day in the event of delay. Time was made of the essence.

The Contractor met with difficulties which put it behind schedule. Slides occurred during the construction of an approach, and other incidents delayed the commencement of the tunnel work. There was delay in getting the proper equipment and trouble in working out an efficient method of pouring concrete. The Contractor had assumed that for the major portion of the distance to be tunneled the country rock would hold without artificial support until the concrete lining was installed in the bores. However, unstable and swelling ground was encountered to the extent that constant timbering was necessary and all timbers had to be left in place. In April or May, 1935, the Contractor complained to the District Engineer that the work had been delayed by bad ground and rainy weather. Shortly thereafter it requested an extension of time, but the request was denied. In August of that year it again requested an extension and claimed additional compensation because of the difficult ground conditions.

On the day the latter request was filed a cave-in occurred which led to a stoppage of the work by order of the state Industrial Accident Commission. After work was resumed a second cave-in caused a

further interruption. Finally, on May 11, 1936, the Contractor filed its last application for an extension, which was denied three days later.

On June 10, 1936, the District delivered a check representing a progress payment for the month of May. The amount certified as due by the District Engineer was actually $3500 more, but the difference was withheld as liquidated damages for the seven days' delay occurring subsequent to May 24, 1936, the date fixed for final completion of the work. The Contractor returned the check and by letter to the District purported to rescind, one of the stated grounds for rescission being the retention of the $3500. On the same day—June 13—the Contractor quit work, at which time the project was about 70% complete. The District promptly gave notice that unless work was resumed within three days the action would be regarded as an abandonment. Some two weeks thereafter the Contractor commenced this suit. Later the District let new contracts for the completion of the project and in December, 1936, filed its cross complaint.

The Contractor predicates its claimed right to rescind on three grounds: (a) that the retention of the liquidated damages, together with the implied purpose of the District to make further deductions for delay, was a material breach of the contract; (b) that the District misrepresented the nature of the ground through which the tunnels were to be driven; and (c) that the District breached the contract by refusing to perform certain work in setting

lines and grades. All these grounds were enumerated in its rescinding letter.

(a) With respect to the withholding of the liquidated sum, it is urged that the District failed to obtain its engineer's opinion whether the work had been unavoidably delayed;[2] and that, assuming the engineer had ruled on the subject, his opinion was arbitrary and capricious, or so grossly mistaken as not to be a binding determination.

The trial court found that the delays were not attributable to Act of God or to stormy or inclement weather, and that they were not unavoidable. Also that the District Engineer had in fact passed on the Contractor's claimed right to an extension, and that in ruling adversely the engineer acted fairly and honestly in the exercise of his judgment. These findings are supported by the evidence.

The question whether there were unavoidable delays was one committed by the contract to the judgment of the engineer. His judgment may be impeached for fraud only, or for mistake so gross as to amount to fraud. American Hawaiian, etc., Co. v. Butler, 165 Cal. 497, 504, 513, 133 P. 280, 286; Connel v. Higgins, 170 Cal. 541, 150 P. 769; Gray v. Cotton, 166 Cal. 130, 134 P. 1145. See also, United

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[2]A subparagraph of the specifications reads as follows: "Extension Of Time.—The time during which the Contractor is delayed in said work by Acts of God, or by stormy or inclement weather or by any reason which, in the judgment of the District Engineer, unavoidably delays the work, shall be added to the aforesaid time for completion . . ."

States v. Gleason, 175 U. S. 588; No. Pac. Ry. Co. v. Twohy Bros. Co., 9 Cir., 95 F. (2d) 220, 225. There is persuasive evidence, most of it coming from the Contractor's own witnesses, that by the use of proper methods and equipment the delay could have been avoided. Clearly, no grounds exist for holding that the decision of the engineer was either fraudulent or palpably unreasonable.

It is argued that, because of the stoppage order of the state authorities following the cave-ins, and in line with a local statute,[3] the delay in performance was excused by operation of law. The court found, however, that any delays which occurred were caused by the Contractor's own acts; and there is ample support for the holding that the cave-ins were due to the Contractor's incompetence. We think the state statute has no application to a situation like this. See Restatement, Contracts, Vol. 2, §458.

It is urged that the delay was excused under the modern doctrine of impossibility of performance. We find no merit in the argument. The ground conditions encountered were not radically different from those which the Contractor should reasonably have anticipated. See Williston on Contracts (Rev. Ed.), Vol. 6, §1931, p. 5410; Restatement, Contracts, Vol. 2, §§454, 456.

(b) The Contractor asserts that it was misled by statements in the geological report to the effect that

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[3] §1511, California Civil Code.

the rock structures were favorable from an engineering standpoint. It refers also to provisions in the specifications which it claims gave rise to a similar belief. On this issue the trial court properly found that the District made no misrepresentations; that the Contractor assumed the risk of unfavorable ground conditions; and that even if the facts had been misrepresented the point was waived.

The contract stipulated that there was no guaranty of the accuracy of the geological report, and that bidders were not relieved of the duty of making their own investigations; and that the submission of a bid should be considered as prima facie evidence that the bidder had examined the site and had satisfied himself as to the conditions. Also that the Contractor was skilled in the trade while the District was not.

Moreover, it affirmatively appears that the Contractor was under no illusions concerning the possible difficulties to be met with in tunneling the Coast Range, and that it was not misled by the geological report or by any provision in the contract. Indeed, there was no claim of misrepresentation until more than a year after the work began. It was not until August, 1935, that the Contractor claimed the right of rescission on this ground; and even then it waited almost a year longer before attempting to rescind.

(c) With respect to the claim that the District breached the contract by failing to indicate lines and grades, the evidence shows that the District maintained the required monuments on a center

line following within 100 to 300 feet of the core. From the end of this line the Contractor was compelled to extend the lines and grades into the drifts. It several times complained that the District was not fulfilling its obligation in this respect, but the latter as consistently maintained that it was doing all the contract required.

We may assume, without deciding, that the District was at fault in failing to continue the lines into the drifts. From the commencement there had been an honest dispute in respect of this matter, and remembering the magnitude of the project we think the refusal of the District to furnish the proper lines for the balance of the operation was not such a material breach as would of itself justify a recission. The point seems to be largely makeweight.

CROSS COMPLAINT OF THE DISTRICT

The following items make up the judgment entered on the cross complaint: (1) $142,000 as liquidated damages for delay at 284 days; (2) $69,001.85, covering "interim" expenditures made by the District in protecting, insuring and measuring the work, and in advertising for new bids; and (3) $98,066.31, representing the completion cost in excess of the Contractor's bid, after deducting unpaid amounts owing the Contractor at the time of abandonment.[4]

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[4]The difference between the cost of completing the work and the contract price for the unfinished work was $591,325.47. From this the court deducted the sum of $493,259.16, owed the Contractor for work done prior to abandonment.

The tunnels were not completed until more than a year after the prescribed date. In computing liquidated damages for the delay, the court included the delay of 20 days occurring prior to abandonment, and found that a reasonable time for the completion of the project was 264 days. The period of 149 days elapsing between the date of abandonment and the resumption of work under the new contracts was excluded from the computation.

Appellants assert that the stipulation for liquidated damages is unenforceable, citing California Civil Code §§1670-1671. This statute declares such a provision void unless it appears from the nature of the case that it would be "impracticable or extremely difficult to fix the actual damage", in which event the amount agreed upon by the parties is presumed to be the actual damage.

Under this statute it is held that the test of impracticability is to be applied as of the date of the contract, rather than as of the time of trial. Hanlon, Drydock & Shipbuilding Co. v. McNear, 70 Cal. App. 204, 232 P. 1002. The question is one of fact; and the party seeking recovery under a provision for liquidated damages has the burden of alleging and proving facts sufficient to satisfy the statutory requirement. City of Los Angeles v. Shafer, 53 Cal. App. 458, 200 P. 384; Consol. L. Co. v. City of Los Angeles, 33 Cal. App. 698, 166 P. 385; Robert Marsh & Co. v. Tremper, 210 Cal. 572; Mente & Co. v. Fresno C. & W. Co., 113 Cal. App. 325, 298 P.

126; Kelly v. McDonald, 98 Cal. App. 121, 276 P. 404.

It was shown that the District—a special and temporary public corporation—was under the expense of keeping its organization intact during the added time required to complete the project. The actual cost of the operating overhead was $272.89 per day. It is plain that this item of damage was neither impracticable nor extremely difficult of ascertainment, hence does not of itself remove the the cause from the ban of the statute. However, the District pleaded and proved, in addition, that the project provided a modern highway of low gradient between portions of Contra Costa County and the business section of Oakland, and was several miles shorter than existing undesirable routes which it was designed to supplant; that more than a million and a half vehicles yearly traveled the old routes, all of which could more safely and more economically move over the new highway; and that delay in completing the project would result in loss to resident taxpayers for whose use the highway was intended—loss great in extent but impracticable of ascertainment. The question here is whether this proof satisfies the requirements of the local statute.

The only California case we have found throwing important light on the subject is City of Oakland v. De Guarda, 95 Cal. App. 270. In that case there was a failure to perform a contract for the improvement of a street. Special assessments had been levied against abutting properties, and in a reletting

of the work it was necessary to increase the amount of these assessments to meet the increased cost of the new contract. The court allowed recovery of an amount equal to the added assessments in a suit by the municipality on the contractor's bond, on the theory that the municipality was trustee for the property owners and the damages were recoverable for their benefit. The bond made no mention of the property owners. Cf. Consol. L. Co. v. City of Los Angeles, supra.

Although a municipality, in its corporate capacity, may suffer no damage from delay in the completion of a public improvement, it may validly contract for liquidated damages for delay in contemplation of the inconvenience and loss which will flow to its inhabitants for whose benefit the improvement is intended and at whose cost it is to be built. Such is the rule applied in the cases generally. United States v. Bethlehem Steel Co., 205 U. S. 105; Md. Dredging etc. Co. v. United States, 241 U. S. 184; City of Reading v. U. S. Fidelity & Guaranty Co. (D. C. E. D. Pa.), 19 F. Supp. 350; Bankers' Surety Co. v. Elkhorn R. Drainage Dist., 8 Cir., 214 F. 342; Brooks v. Wichita, 8 Cir., 114 F. 297; Parker-Washington Co. v. Chicago, 267 Ill. 136, 107 N.E. 872, Ann. Cas. 1916C 337; Marshall v. Atkins, 60 Tex. Civ. App. 336, 127 S.W. 1148; Ann. Cas. 1912C 1028; Whiting v. New Baltimore, 127 Mich. 66, 86 N.W. 403; Detroit v. Peoples Telephone Co., 135 Mich. 696, 98 N.W. 745; Spring Wells Township v. Detroit P. & N. R. Co., 140 Mich. 277, 103

N.W. 700. For other cases on the subject see note, 34 A.L.R. 1345 et seq. The provision is valid.

Appellants contend that the clause does not apply to the delay in completion after abandonment by the Contractor. The stipulation is shown on the margin.[5] Fairly construed, it means that the period for which the damages are to be computed comprises the time between the agreed date of completion of the "work" and its actual completion, whether by the Contractor or by the District. It is not for delay in completion of the contract but for delay in the completion of the work that the damages are provided. The clause does not in terms or by implication empower the Contractor to put an end to the accrual of the liquidated damages by the mere process of refusing to go ahead after the time for completion had passed. The Court of Appeals for the Second Circuit in construing a New York contract so holds and finds authority therefor in the New York de-

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[5] "* * * The parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the contract or within such extensions of the contract time as may be allowed as herein provided, it is distinctly understood and agreed that the Contractor shall pay the District as agreed and liquidated damages and not as a penalty five hundred dollars ($500.00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work, said sum being specifically agreed upon as a measure of damage to the District by reason of delay in the completion of the work * * *"

cisions. So. Pacific v. Globe Indemnity Co., 21 F. (2d) 288. To similar effect are School Dist. No. 3 v. U. S. Fidelity & G. Co., 96 Kan. 499, 152 P. 668; Natl. Loan & Exch. Bank v. Gustafson, 157 S.C. 221, 154 S.E. 167, 171; City of Reading v. U. S. Fidelity & G. Co., supra.

Cases cited by appellants and by Williston on Contracts (Rev. Ed.), Vol. 3, §747, p. 2210, are, with one exception,[6] distinguishable. They are Geary v. City of Pasco, 89 Wash. 352, 154 P. 433, where there was no abandonment by the contractor; likewise in Fidelity & Deposit Co. v. Robertson, 136 Ala. 379, 34 So. 933, 944, in Moore v. Board of Regents, 215 Mo. 705, 115 S.W. 6, in Joint School Dist. v. Bailey Marsh Co., 181 Wis. 202, 194 N.W. 171, and in Shields v. John Shields Cons. Co., 81 N. J. Eq. 286, 86 A. 958; City of Rainier v. Masters, 79 Ore. 534, 154 P. 426, where there was no allegation or proof of the completion of the work; Moses v. Antuono, 56 Fla. 497, 47 So. 925, and Board of Education v. Sandman, 234 N.Y.S. 665, 667, where the performance of the contract never was commenced; Bacigalupi v. Phoenix Bldg. etc. Co., 14 Cal. App. 632, 637, where no damage was awarded for delay and the appellant merely claimed that the liquidated damage clause for delay prevented a recovery for the increased cost of completing the building.

Appellants argue that we are bound by the decision of a California District Court of Appeal in

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[6]Village of Canton v. Globe Indemnity Co., 195 N.Y.S. 445. See 52 Harv. L. Rev. 160-161.

Sinnott v. Schumacher, 45 Cal. App. 46, 52, 53. There the contractor had abandoned the contract and, while the fact does not appear on the face of the opinion, actual damages for delay were allowed in lieu of the liquidated amount. In that case there was a petition for hearing by the Supreme Court of the state, but not on this point. The decision is adverse to ours, but the court failed to consider the authorities and stated its mere conclusion without reasoning. The case is not persuasive, and we think was wrongly decided.

California is divided territorially into four judicial districts in each of which sits a District Court of Appeal, an intermediate appellate court. While there is conflict in these courts whether the decision of one is binding on another, Skaggs v. Taylor, 77 Cal. App. 519, Clover v. Jackson, 81 Cal. App. 55, the most recent case holds that one District Court of Appeal is not bound by the decision of another. People v. Brownell, 2 Cal. App. (2d) 287. However this may be, a decision of the intermediate court is not binding on the Supreme Court of the state even where the latter denies a petition for hearing. People v. Rabb, 202 Cal. 409.

This court is no more bound to follow a decision of a District Court of Appeal than is the court of last resort of the state. Our position here, in a case where the point at issue has not been decided by the highest California court, Erie R. Co. v. Tompkins, 304 U.S. 64, Lyon v. Mutual Benefit Health & Acc. Assn., 305 U.S. 484, 489, is that we have been substi-

tuted for the California Supreme Court as the appropriate court of appeal, and that it is our duty to apply the California law as the Supreme Court of the state would apply it on an appeal there. Wichita Co. v. City Bank, 306 U.S. 103, 107. In the performance of that function we may regard the decision of an intermediate appellate court as persuasive, but it is not controlling. Security First Natl. Bank v. United States, 9 Cir., 103 F. (2d) 188, 190; Russell v. Todd, U. S., decided February 26, 1940.

Appellants assert that the contract itself (Article 5) fixed the measure of damages and established the procedure to be followed by the District in completing the work; and that in its cross complaint the District did not allege compliance with this procedure or claim damages in conformity with the article.[7] The clause, it is said, required the District to

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[7]Article 5, so far as material, reads as follows: "The [Contractor] agrees that if the work to be done under this contract . . . shall be abandoned, or if this contract shall be assigned by the [Contractor], or if at any time the District Engineer shall be of the opinion, and shall so certify in writing to the said [District] that the said work or any part thereof is unnecessarily or unreasonably delayed, or that the said [Contractor] is wilfully violating any of the conditions of this contract, or is executing this contract in bad faith, the said [District] shall have the power to notify the [Contractor] to discontinue all work or any part thereof under this contract, and thereupon the said [Contractor] shall cease to continue said work or such part thereof as said [District] may designate, and the said [District] shall thereupon have the power to place such

complete the project with its own forces and did not authorize a re-letting. Also, it required the District, upon completion of the work, to audit the expenses incurred and cast a balance; whereupon the District was obliged to give notice before any liability for an unfavorable balance would accrue.

In response to this argument, the District denies that it was under any obligation to proceed in conformity with the terms of the article.

So far as concerns the District, the provisions of the article are plainly optional. The Contractor agrees that the District "shall have the power" to

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and so many persons, and to obtain by contract, purchase or hire, such animals, carts, wagons, implements, tools, material or materials, by contract or otherwise, as said [District] may deem advisable, to work at and be used to complete the work herein described, or such part thereof as the agent authorized to superintend the same may deem necessary, and to use such material as they may find upon the line of said work and to charge the expense of such labor and material, animals, carts, wagons, implements and tools to the [Contractor], and the expense so charged shall be deducted and paid by the [District] out of such moneys as may be either due or may at any time thereafter become due to the said [Contractor] under and by virtue of this contract or any part thereof. In case such expense is less than the sum which would have become payable under this contract, if the same had been completed by the said [Contractor], the said [Contractor] shall be entitled to receive the difference, and in case such expense shall exceed the last said amount, then the said [Contractor] or its bondsmen shall pay the amount of such excess to the [District] on notice from the said [District] of the excess so due."

complete the work in the manner indicated. The latter did not promise to follow the procedure, nor agree to relinquish its right, under general law, to let new contracts and hold the Contractor for damages. Bd. of Education v. Md. Casualty Co., 3 Cir., 27 F. (2d) 20; City of Reading v. U. S. Fidelity & G. Co., supra. Cf. United States v. U. S. Fidelity & G. Co., 236 U.S. 512; Prudence Co. v. Fidelity Co., 297 U.S. 198. Nor, having re-let the work for a definite sum, was the District obliged to await its completion before bringing suit to recover its damages. Bacigalupi v. Phoenix Bldg. Co., supra; United States v. U. S. Fidelity & G. Co., supra; Bd. of Education v. Md. Casualty Co., supra; City of Reading v. U. S. Fidelity & G. Co., supra.

If we assume, contrary to the interpretation of the parties themselves, that the language of Article 5 is broad enough to authorize the District to proceed, as it did, by re-letting the work to other independent contractors, still the stipulated mode of assessing damages was not compulsory. It is plain that the prescribed method was to become operative only in the event the District, by serving the stipulated notice, should elect to cause the Contractor to discontinue and itself take over the work. No such notice was in fact given. What the District did was to notify the Contractor that, unless the latter resumed work within three days, the District would proceed to complete it and hold the Contractor and its bondsmen liable for any cost in excess of the contract price and "any and all damages to this

District by reason of your wilful abandonment of the work."

There is another interpretation of the article which entirely eliminates it from consideration. Read as a whole, it appears to contemplate contingencies in which the District may take the initiative and compel the Contractor to discontinue the work, in whole or in part. In Natl. Contracting Co. v. Hudson River W. P. Co., 118 App. Div. 665, 103 N.Y.S. 641, a substantially identical clause was held inapplicable in a situation where, as here, the builder wrongfully abandoned the contract and quit the work of its own motion. This holding was cited with approval in Bacigalupi v. Phoenix Bldg. Co., supra. See also 17 C.J.S. §512, pp. 1095-6; George A. Fuller Co. v. Doyle, 87 Fed. 687.

In any event, we are satisfied that the article was not intended as a limitation upon the rights of the District, but rather as an enlargement of them.

Other points have been argued. We have considered all of them and find no error warranting a reversal.

Affirmed.

[Endorsed]: Opinion. Filed Mar. 14, 1940. Paul P. O'Brien, Clerk.

United States Circuit Court of Appeals
for the Ninth Circuit

No. 9113

SIX COMPANIES OF CALIFORNIA,
a corporation, et al.,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Appellee.

JUDGMENT

Upon appeal from the District Court of the United States for the Northern District of California, Southern Division.

This Cause came on to be heard on the Transcript of the Record from the District Court of the United States for the Northern District of California, Southern Division, and was duly submitted:

On consideration whereof, it is now here ordered and adjudged by this Court that the judgment of the said District Court in this cause be, and hereby is affirmed, with costs in favor of the appellee and against the appellants.

It is further ordered and adjudged by this Court that the appellee recover against the appellants for its costs herein expended, and have execution therefor.

[Endorsed]: Filed and entered March 14, 1940. Paul P. O'Brien, Clerk. By F. H. Schmid, Deputy.

United States Circuit Court of Appeals
for the Ninth Circuit

Excerpt from Proceedings of Thursday, April 25, 1940.

Before: Denman, Mathews and Healy,
Circuit Judges.

[Title of Cause.]

ORDER DENYING PETITION FOR REHEARING

Upon consideration of the petition of appellants for rehearing of above cause, filed on April 12, 1940, and the answer thereto filed on April 18, 1940, and by direction of the Court, it is ordered that the said petition be, and hereby is denied.

[Title of Circuit Court of Appeals and Cause.]

ORDER STAYING ISSUANCE OF MANDATE

Upon application of Paul S. Marrin, Esq., counsel for the appellants, and good cause therefor appearing, it is ordered that the issuance, under Rule 28, of the mandate of this Court in the above cause be, and hereby is stayed to and including June 21, 1940; and in the event the petition for a writ of certiorari to be made by the appellant herein be docketed in the Clerk's office of the Supreme Court of the United States on or before said date, then the mandate of this Court is to be stayed until

after the said Supreme Court passes upon the said petition.

WILLIAM DENMAN,
United States Circuit Judge.

Dated: San Francisco, California, April 27, 1940.

[Endorsed]: Filed Apr. 27, 1940. Paul P. O'Brien, Clerk.

[Title of Circuit Court of Appeals and Cause.]

CERTIFICATE OF CLERK, U. S. CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT, TO RECORD CERTIFIED UNDER RULE 38 OF THE REVISED RULES OF THE SUPREME COURT OF THE UNITED STATES.

I, Paul P. O'Brien, as Clerk of the United States Circuit Court of Appeals for the Ninth Circuit, do hereby certify the foregoing two thousand six hundred thirty-six (2,636) pages, numbered from and including 1 to and including 2,636, Volume VIII being the Book of Exhibits containing six hundred and forty-one (641) pages, numbered from and including 1 to and including 641, to be a full, true and correct copy of the entire record, excluding original exhibits, of the above-entitled case in the said Circuit Court of Appeals, made pursuant to request of counsel for the appellants, and certified under Rule 38 of the Revised Rules of the Supreme Court of the United States, as the originals thereof remain on file and appear of record in my office.

Attest my hand and the seal of the said the United States Circuit Court of Appeals for the Ninth Circuit, at the City of San Francisco, in the State of California, this 17th day of June, 1940.

[Seal] PAUL P. O'BRIEN,
Clerk.

SUPREME COURT OF THE UNITED STATES

ORDER ALLOWING CERTIORARI—Filed October 14, 1940

The petition herein for a writ of certiorari to the United States Circuit Court of Appeals for the Ninth Circuit is granted, limited to the first question presented by the petition and the case is assigned for argument immediately following No. 74.

And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.

IN SUPREME COURT OF THE UNITED STATES

STIPULATION AS TO CONTENTS OF RECORD—Filed October 24, 1940

It is hereby stipulated that there may be omitted from all copies of Volume VIII (book of exhibits) of the printed record to be filed with the above entitled court, except the ten copies which were filed with the petition for the writ of certiorari, all photostatic matter, such photostatic matter not being essential to a consideration of the questions presented by the petition for the writ and that the record may be considered complete upon there being furnished to the Clerk of the above entitled court the required number of copies of the record with such photostatic material included in only ten copies of said Volume VIII.

Dated: October 16, 1940.

Paul S. Marrin, Max Thelen, DeLancey C. Smith, Balfour Building, San Francisco, California, Attorneys for Petitioner, Six Companies of California. Jewell Alexander, 315 Montgomery Street, San Francisco, California, Attorney for All Other Petitioners. Archibald B. Tinning, 924 Main Street, Martinez, California, Theodore P. Wittschen, Latham Square Building, Oakland, California, Attorneys for Respondent.

[File endorsement omitted.]

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In the Supreme Court of the United States

OCTOBER TERM, 1940

No. .....

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLEN FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Petitioners,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Respondent.

Petition for a Writ of Certiorari to the United States Circuit Court of Appeals for the Ninth Circuit.

To the Honorable the Chief Justice and Associate Justices of the Supreme Court of the United States:

Your petitioners, Six Companies of California, and Hartford Accident and Indemnity Company, Fidelity and Deposit Company of Maryland, The Aetna Casualty and Surety Company, Indemnity Insurance Company of North America, American Surety Company of New York, Maryland Casualty Company, United States Fidelity and Guaranty Company, The Fidelity and Casualty Company of New York, Glen Falls Indemnity Company, Standard Surety and Casualty Company of New York, Standard Accident Insurance Company, Massachusetts Bonding and Insurance Company, Continental Casualty Company and New Amsterdam Casualty Company, respectfully show:

A.

SUMMARY STATEMENT OF THE MATTER INVOLVED.

Two questions are presented by this petition:

The first question is whether a California rule of law, declared by its District Court of Appeal in a decision which the California Supreme Court refused to review, which decides that a clause in a construction contract providing for liquidated damages for delay in completion of the contract work does not apply after the contractor abandons the contract, is a rule of law which is binding on the courts of the United

States in an action arising in California and subject to its laws.

A second question is also presented as to whether *any* liquidated damages can be recovered in the present case (regardless of the answer to the first question) because sections 1670-71 of the California Civil Code declare provisions in a contract for such damages void unless "from the nature of the case, it would be impracticable or extremely difficult to fix the actual damage". In this case such impracticability or extreme difficulty did not exist.

Petitioner Six Companies of California, as contractor, (hereinafter called "contractor" to distinguish it from the other petitioners which were sureties on a bond given by contractor) contracted with respondent Joint Highway District No. 13 of the State of California for the construction of a highway project including two parallel tunnels commonly known as the Broadway Tunnel near Oakland, in Alameda and Contra Costa Counties, California. After part performance, contractor, asserting that respondent had breached the contract, served notice of rescission and stopped work. Contractor thereafter brought suit against respondent in the District Court of the United States for the Northern District of California for the reasonable value of materials and labor furnished. Respondent answered alleging a wrongful abandonment of the contract and cross-complained for damages against the contractor and its sureties, including damages for delay in the amount of $206,500.00 (R. 58).

The claim of respondent for damages for delay was based solely on a contract clause providing that contractor would pay to respondent $500.00 per day for each day after May 24, 1936, until the work was actually completed (R. 53-57). Respondent neither pleaded nor attempted to prove it had sustained any actual damage from any delay.

The District Court found against petitioners on all issues raised by both the complaint and cross-complaint. It found that the contractor had wrongfully abandoned the work on June 13, 1936 (R. 155) and was not entitled to judgment on the complaint (R. 216). It found that the time when the contractor was required to complete the work under the contract expired on May 24, 1936, that there was a delay of twenty days beyond that date prior to abandonment of the contract on June 13, 1936, and the following delays after abandonment:

1. A delay of 149 days after abandonment before new contracts were let by respondent for doing the work.
2. A delay of 264 days after the first new contract was let before the work was completed (Finding of Fact XXIII R. 199-201).

The District Court concluded that respondent was entitled to judgment on its cross-complaint including judgment for liquidated damages for delay in the amount of $142,000.00, being damages at the stipulated contract rate of $500.00 per day for 20 days'

delay prior to abandonment and 264 days' delay after abandonment.

On September 27, 1938, in conformity with the conclusions of the District Court a judgment was entered by that Court against the contractor on the complaint and in favor of respondent and against all the petitioners on the cross-complaint. There was included in the judgment in favor of respondent on the cross-complaint the above mentioned amount of $142,000.00 as liquidated damages for delay (R. 309).

On November 25, 1938, petitioners appealed the judgment of the said District Court to the United States Circuit Court of Appeals for the Ninth Circuit which on March 14, 1940, affirmed the judgment (R. 2634). Petitioners thereafter filed a petition for rehearing which was denied on April 25, 1940 (R. 2635).

Petitioners here seek to review only that part of the judgment of the Circuit Court of Appeals which affirms the judgment of the District Court awarding to respondent liquidated damages for delay in the amount of $142,000.00.

The Circuit Court of Appeals affirmed that part of the judgment on the cross-complaint on the grounds,

(a) that the provision in the contract for liquidated damages for delay was applicable to delay after abandonment, and in so holding refused to be bound by or to follow a decision to the contrary by the District Court of Appeal of the State of California (*Sinnott v. Schumacher*, (1919) 45 Cal.

App. 46, 187 Pac. 105). In so holding the Circuit Court of Appeals conceded that its decision was adverse to that of the District Court of Appeal (R. 2629) but held that such decision was not binding on it because it was not a decision by the Supreme Court of California, and

(b) that such provision was valid notwithstanding sections 1670 and 1671 of the California Civil Code even though the respondent in its corporate capacity suffered no actual damages from delay which were impracticable or extremely difficult to fix.

B.

JURISDICTION.

1. The jurisdiction of the Supreme Court of the United States to issue the writ of certiorari herein prayed for is invoked under Judicial Code, Section 240 (a), as amended by the Act of February 13, 1925, 43 Stat. 938 (28 U. S. C., Section 347 (a)).

2. The judgment which is sought to be reviewed was entered by the United States Circuit Court of Appeals for the Ninth Circuit on March 14, 1940. A petition by petitioners for a rehearing (filed within the time allowed by the rules of said Circuit Court of Appeals) was denied on April 25, 1940 (R. 2635).

3. The petitioners claim that, under and by virtue of the local law of California, as established by its Courts, provisions in construction contracts for liqui-

dated damages for delay have no application to delay subsequent to abandonment and that, under and by virtue of the local law of California, as established by the statutes thereof, such provisions are void unless there are actual damages to a party to the contract which it would be impracticable or extremely difficult to fix and that the record shows conclusively that there were no such damages. On both of these grounds petitioners claim that the part of the judgment of the Circuit Court of Appeals affirming the judgment of the District Court against them on the cross-complaint for liquidated damages for delay is erroneous.

4. Petitions for writs of certiorari to review decisions of the United States Circuit Courts of Appeals which have failed to follow the laws of the several States have been heretofore granted by this Court. *Erie Railroad Co. v. Hilt* (1918) 247 U. S. 97, 38 S. Ct. 435, 62 L. Ed. 1003; *Fidelity Union Trust Company v. Field* (1940) 60 S. Ct. 890, Preliminary print official reports Vol. 309, No. 2, p. IV. (Petition in the last cited case for Writ of Certiorari to Circuit Court of Appeals for the Third Circuit was granted by the Supreme Court April 22, 1940.)

C.

REASONS RELIED ON FOR THE ALLOWANCE OF THE WRIT.

1. The decision of the United States Circuit Court of Appeals for the Ninth Circuit in refusing to be bound by or to follow the decision of the District

Court of Appeal of California in the case of *Sinnott v. Schumacher* (1919) 45 Cal. App. 46, 187 Pac. 105, is in conflict with Section 34 of the Judiciary Act of 1789, now found in the Judicial Act in 28 U. S. C., Section 725, as construed by the case of *Erie Railroad Co. v. Tompkins* (1938) 304 U. S. 64, 58 S. Ct. 817, 82 L. Ed. 1188.

2. The decision of the United States Circuit Court of Appeals for the Ninth Circuit, in refusing to be bound by or to follow the decision of a District Court of Appeal of California is in conflict with the decision of the United States Supreme Court in the case of *Rindge Company v. County of Los Angeles* (1923) 262 U. S. 700, 43 S. Ct. 689, 67 L. Ed. 1186. In that case, the United States Supreme Court held it was controlled so far as state law was concerned by a decision of a District Court of Appeal of California. It is also in conflict with the opinion rendered by the United States Supreme Court in *Tipton v. Atchison, Topeka & Santa Fe Railway Co.* (1936) 298 U. S. 141, 56 S. Ct. 715, 80 L. Ed. 1091.

3. The decision of the United States Circuit Court of Appeals in passing upon the validity of the clause of the contract providing for liquidated damages followed the general rule of law and not the California rule as set forth in the statutes of this State (Sections 1670 and 1671 of the California Civil Code) and for that further reason is in conflict with the decision of this Court in *Erie Railroad Co. v. Tompkins*, supra. (Said code sections are quoted in full in the following brief).

WHEREFORE, your petitioners respectfully pray that a writ of certiorari be issued out of and under the seal of this Honorable Court directed to the United States Circuit Court of Appeals for the Ninth Circuit, commanding that Court to certify and to send to this Court for its review and determination, on a day certain to be therein named, a transcript of the record and proceedings herein; and that that part of the judgment of the United States District Court for the Northern District of California on the cross-complaint which awards to respondent $142,000.00 liquidated damages for delay and that part of the order and judgment of the United States Circuit Court of Appeals for the Ninth Circuit affirming such part of said judgment of said District Court be reversed by this Honorable Court, and your petitioners have such other and further relief in the premises as to this Honorable Court may seem meet and just.

PAUL S. MARRIN,
MAX THELEN,
DELANCEY C. SMITH,
Attorneys for Petitioner
Six Companies of California

JEWEL ALEXANDER,
Attorney for all other
Petitioners.

In the Supreme Court of the United States

OCTOBER TERM, 1940

No. .....

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLEN FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Petitioners,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Respondent.

Brief in Support of Petition for Writ of Certiorari.

I.

OPINIONS OF THE COURTS BELOW.

The opinion of the District Court was rendered April 8, 1938, and was reported under the title of Six Companies of California v. Joint Highway District No. 13 of the State of California in 24 Fed. Supp. 346. The opinion of the Circuit Court of Appeals was rendered March 14, 1940, and was reported under the same title in 110 F. (2d) 620, and is set forth in full in the record (R. 2616).

II.

GROUNDS ON WHICH THE JURISDICTION OF THIS COURT IS INVOKED.

A full statement of these grounds has heretofore been given under heading B in the petition, and in the interest of brevity the statement will not be repeated in this brief.

III.

STATEMENT OF THE CASE.

As stated in the petition, we are requesting this Court to reverse only that part of the judgments rendered by the Courts below which awarded to respondent on its cross-complaint liquidated damages for delay. For that reason we shall confine this statement to those facts which are pertinent to a review of that question.

Under the limited review requested we are not questioning the correctness of the conclusion of the Courts below that petitioner Six Companies of California (hereinafter called contractor) abandoned, on June 13, 1936, without sufficient justification, its contract with respondent for the construction of a highway and highway tunnels. We accept as correct for the purposes of this petition, the findings of fact of the District Court that the time for completion of the work under the contract, as provided in that document, expired on May 24, 1936 (Finding XXXIII, R. 199) and that the reasonable time for completion of the work after respondent relet it to others was 264 days (R. 200).

The cross-complaint of respondent (R. 46) against petitioners claimed damages for its cost of measuring and reletting the work (R. 50-52) and the excess cost over the contract price of completing the work (R. 52-53). Judgment was entered in favor of respondent on both these items and that part of the judgment is not questioned here.

In addition, the cross-complaint claimed damages of $206,500.00 from delay, basing that claim on the following provision of the contract:

> "(d) Damages for Delay.—The parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the contract or within such extensions of the contract time as may be allowed as herein provided, it is distinctly understood and agreed that the Con-

tractor shall pay the District as agreed and liquidated damages and not as a penalty five hundred dollars ($500.00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work, said sum being specifically agreed upon as a measure of damage to the District by reason of delay in the completion of the work; it being expressly stipulated and agreed that it would be impracticable to estimate and ascertain the actual damages sustained by the District under such circumstances; and the Contractor agrees and consents that the amount of such liquidated damages so fixed, shall be deducted and retained by the District from any money then due, or thereafter to become due, the Contractor." (R. Volume VIII, Book of Exhibits, p. 9).

The cross-complaint neither alleged nor asked any actual damages from delay, but the part thereof claiming damages from delay was based entirely on the quoted provision in the contract for liquidated damages (R. 53-58).

The Circuit Court of Appeals, as stated in the petition, refused to be bound by and follow a decision of the District Court of Appeal of California, admittedly contrary to the decision of the Circuit Court of Appeals (R. 2629), holding such provisions inapplicable after abandonment. Had the Circuit Court of Appeals applied the law of California as decided by the District Court of Appeal, the judgment for liquidated damages would have been only $10,000.00 instead of $142,000.00.

In an effort to comply with the California rule, as expressed in sections 1670 and 1671 of the California Civil Code and the decisions of the Courts of that State that one seeking to enforce such a provision must both plead and prove facts showing that "from the nature of the case, it would be impracticable or extremely difficult to fix the actual damage", respondent alleged in its cross-complaint three items of damage from delay which it claimed established this. They were:

1. Damage to the public (R. 55, 56);
2. Cost of maintaining defendant's staff and organization (R. 57);
3. Interest on its bonds (R. 57).

The District Court found in accordance with these allegations of the cross-complaint (R. 202), concluded that respondent was entitled to a judgment for $142,000.00 liquidated damages (R. 217) and included that amount of such damages in the judgment rendered (R. 310).

The Circuit Court of Appeals sustained the contractual provision on the sole ground that respondent had proved that there would be damage from delay to taxpayers who were residents of respondent—though not to respondent itself—great in extent but impracticable of ascertainment and that respondent, a municipal corporation, could, for that reason, enforce the provision (R. 2624-2626). In so holding the Circuit Court of Appeals applied a rule of general law pre-

vailing in other jurisdictions but contrary to the express provisions of California statutes (Civil Code Sections 1670-1671).

IV.

SPECIFICATION OF ERRORS.

A. The United States Circuit Court of Appeals for the Ninth Circuit erred in holding it is not bound to follow the decision of the District Court of Appeal of California rendered in the case of *Sinnott v. Schumacher* (1919) 45 Cal. App. 46, 187 Pac. 105, that provisions for liquidated damages in construction contracts are inapplicable after abandonment.

B. The United States Circuit Court of Appeals for the Ninth Circuit erred in holding that the decision of the District Court of Appeal of California in *Sinnott v. Schumacher,* supra, did not establish the law of the State of California on the point in issue.

C. The United States Circuit Court of Appeals for the Ninth Circuit erred in substituting its opinion for the opinion of the District Court of Appeal of California as to what the law of California is on the point in issue.

D. The decision of the United States Circuit Court of Appeals for the Ninth Circuit, in refusing to follow the decision of a District Court of Appeal of California, is in conflict with Section 34 of the Judiciary Act of 1789, now found in the Judicial Act in 28 U. S. C., Section 725, as construed by the cases of

Erie Railroad Co. v. Tompkins (1938) 304 U. S. 64, 58 S. Ct. 817, 82 L. Ed. 1188, and *Ruhlin v. New York Life Insurance Co.* (1938) 304 U. S. 202, 58 S. Ct. 860, 82 L. Ed. 1290.

E. The decision of the United States Circuit Court of Appeals for the Ninth Circuit, in refusing to follow the decision of a District Court of Appeal of California, is in conflict with prior decisions of this Court in *Tipton v. Atchison, Topeka & Santa Fe Railway Co.* (1936) 298 U. S. 141, 56 S. Ct. 715, 80 L. Ed. 1091, and *Rindge Company v. County of Los Angeles* (1923) 262 U. S. 700, 43 S. Ct. 689, 67 L. Ed. 1186.

F. The decision of the United States Circuit Court of Appeals for the Ninth Circuit is in conflict with sections 1670 and 1671 of the Civil Code of California.

V.

ARGUMENT.

SUMMARY OF THE ARGUMENT.

Point A. The Circuit Court of Appeals erred in holding that it is not bound to follow the decision of the District Court of Appeal of California in the case of *Sinnott v. Schumacher* (1919) 45 Cal. App. 46, 187 Pac. 105.

The jurisdiction of the District Courts of Appeal of California is State-wide.

This Court has decided that the Courts of the United States sitting in California are bound by de-

cisions of the California District Courts of Appeal where the Supreme Court of California has denied a rehearing after decision of such Courts.

Point B. The Circuit Court of Appeals erred in holding that the stipulation in the contract for liquidated damages was valid under the law of California.

POINT A.

THE CIRCUIT COURT OF APPEALS ERRED IN HOLDING THAT IT IS NOT BOUND TO FOLLOW THE DECISION OF THE DISTRICT COURT OF APPEAL OF CALIFORNIA IN THE CASE OF SINNOTT v. SCHUMACHER, (1919) 45 Cal. App. 46, 187 Pac. 105.

The Circuit Court of Appeals in its opinion herein conceded that the District Court of Appeal of California had decided in *Sinnott v. Schumacher,* supra, that a liquidated damage provision in a construction contract applies only to delay while the contractor is performing the work under the contract and has no application after the contractor has abandoned the work and that the damages from delay, if any, recoverable in such case are the actual damages and not the liquidated amount (R. 2629).

It held, however, that it was not bound by that decision and that, with respect to decisions of the California District Courts of Appeal, it was in the same position as the California Supreme Court and could apply the law of California as it construed it regardless of District Court of Appeal decisions (R. 2629-2630).

We think that in so holding the Circuit Court of Appeals fell into error and misconstrued the decision of this Court in *Erie Railroad Co. v. Tompkins* (1938) 304 U. S. 64, 58 S. Ct. 817, 82 L. Ed. 1188.

It took the view that the *Erie Railroad Co.* case holds that Courts of the United States are bound only by the decisions of state courts of last resort. But this overlooks what we believe is the fundamental basis of the decision. As this Court said in the *Erie* case, at page 78:

> "Except in matters governed by the Federal Constitution or by Acts of Congress the law to be applied in any case is the law of the State."

The question involved then is—What is the law of California? It seems to us, under the reasoning of the *Erie Railroad Co.* case that it makes little difference what state court has declared the law so long as it is the rule of decision in the state. It is true that in the *Erie* case this Court referred to the law of the state as declared by its highest court in a decision. But it did not say that the law of the state might not be established by the decision of an intermediate appellate court and where the decision of such court does in fact announce a rule of law which other state courts are bound to follow it establishes the law of the state even though another court of the state has the power to overrule its decision.

In *Ruhlin v. New York Life Insurance Co.* (1938) 304 U. S. 202, 58 S. Ct. 860, 82 L. Ed. 1290, this Court said, at pages 208, 209:

"Application of the 'State law' to the present case, or any other controversy controlled by *Erie R. Co. v. Tompkins,* does not present the disputants with duties difficult or strange. The parties and the federal courts must now search for and apply the entire body of substantive law governing an identical action in the state courts. Hitherto, even in what were termed matters of 'general' law, counsel had to investigate the enactments of the state legislature. Now they must merely broaden their inquiry to include the *decisions of the state courts, just as they would in a case tried in the state court,* and just as they have always done in actions brought in the federal courts involving what were known as matters of 'local' law." (Emphasis ours.)

Had this case been tried in any superior (trial) court of California, such court would have been bound by the decision in *Sinnott v. Schumacher,* and the result would have been the opposite of that announced by the Circuit Court of Appeals. If, therefore, as this Court says in the *Ruhlin* case, the state law is to be determined just as it would in a case tried in the state courts we cannot escape the conclusion that the decisions of the California District Courts of Appeal are binding on the federal courts.

The power of the Supreme Court of California to overrule decisions of the District Courts of Appeal has little bearing on the solution of the problem. The Supreme Court has the power to overrule its own decisions, but its prior decisions, as well as prior decisions of the District Courts of Appeal, are the law of the state unless and until overruled. It is not un-

usual for courts of last resort to overrule earlier decisions, but until they do so the earlier decision must be followed by inferior courts.

The Decision of One District Court of Appeal in California Binds the Others, Particularly When a Petition for Hearing by the Supreme Court of the Earlier Case Has Been Denied.

The opinion of the Circuit Court of Appeals in this case states, in discussing the question of whether the decision of one District Court of Appeal is binding on another:

> "* * * While there is conflict in these courts, whether the decision of one is binding on another, *Skaggs v. Taylor,* 77 Cal. App. 519, *Clover v. Jackson,* 81 Cal. App. 55, the most recent case holds that one District Court of Appeal is not bound by the decision of another. *People v. Brownell,* 2 Cal. App. (2d) 287." (R. 2629)

We must respectfully differ from this statement. In addition to *Skaggs v. Taylor* and *Clover v. Jackson,* cited in the above quotation, all of the following cases hold that the District Courts of Appeal of one district are bound by prior decisions of such courts in another district, where the Supreme Court has denied a hearing in the prior case.

Bridges v. Fisk (1921) 53 Cal. App. 117, 122, 200 Pac. 71;

People v. Whitaker (1924) 68 Cal. App. 7, 11, 228 Pac. 376;

Masonic Mines Association v. Superior Court (1934) 136 Cal. App. 298, 300, 28 Pac. (2d) 691.

People v. Brunwin (1934) 2 Cal. App. (2d) 287, 37 Pac. (2d) 1072 (cited in the quotation from the opinion as *People v. Brownell*) states no different rule. In that case, as the court points out in its opinion at page 294, the Supreme Court in *People v. Rabe* (1927) 202 Cal. 409, 261 Pac. 303, had previously disapproved the ruling in the prior decision of the District Court of Appeal upon which reliance was placed. Upon such disapproval it, of course, ceased to be authority.

As the District Courts of Appeal of one district are bound by the decisions of the same courts in their own and other districts, such decisions are of state-wide scope and application. A rule of law announced in one district will be followed in all others and, of course, must be followed by all trial courts.

Does not, therefore, the decision of the Court in the instant case perpetuate the evils condemned in *Erie Railroad Co. v. Tompkins,* supra? There are many propositions of state law in California which have never been decided by its Supreme Court but which have been decided by a District Court of Appeal on which the Supreme Court has denied a hearing. These decisions of the District Courts of Appeal are accepted as the law throughout the state and the rules announced by them are applied in litigation in its courts. Many of the rules of law announced by the District Courts of Appeal of the state have never been decided by its Supreme Court and probably never will be, because under the enlarged jurisdiction conferred upon the District Courts of Appeal by the 1928 amendment to Article VI, section 4, of

the California Constitution most appeals are taken directly to these courts and it is very unlikely that the Supreme Court would order any case in which it believes the District Courts of Appeal have properly applied the law to be transferred to it for hearing. We earnestly contend that the decisions of these courts are the law of the state when there is no decision of the Supreme Court which conflicts with them. If the federal courts refuse to follow them we may have, for long and indefinite periods of time, one rule in the federal courts and another in the state courts, a condition substantially the same as that brought about by the rule announced in *Swift v. Tyson,* 16 Pet. 1.

Sinnott v. Schumacher, supra, was a case in which the appeal was properly taken in the first instance to the Supreme Court and was then transferred by the Supreme Court to the District Court of Appeal for hearing. Under such circumstances, the denial by the Supreme Court of a hearing after decision by the District Court of Appeal meant that the Supreme Court considered the decision correct upon the case shown by the record and not simply that no error appeared upon the face of the opinion of the District Court of Appeal, as would be the situation if the case had been in the appellate jurisdiction of the District Court of Appeal and if the judgment had been appealed directly to that court.

This distinction was clearly stated by the Supreme Court of California in denying a rehearing in the

case of *Burke v. Maze* (1909) 10 Cal. App. 206, 101 Pac. 438.

We quote from the decision of the Supreme Court appearing at pages 211 and 212 of the appellate reports:

> "The petition for a rehearing of this cause in the supreme court, after judgment in the district court of appeal, is denied. It is a cause which, under the recent amendment to article VI of the constitution, went properly by direct appeal to the district court for the first district. In such cases a rehearing in this court is granted only when error appears upon the face of the opinion of the appellate court, or when a doubtful and important question is presented upon which we desire to hear further argument. In such cases the denial of a petition for a rehearing would or might establish a mischievous precedent, and for that reason alone we feel obliged to review the decision of a cause which is not within our jurisdiction by direct appeal. In causes properly appealed to this court and referred by us to the district court for hearing and decision the rule as to rehearings is different; for if it is contended that the case stated in the opinion of the district court of appeal differs materially from the case as it appears in the record, we feel bound to look into the record to see whether anything deserving consideration has been overlooked in deciding the cause, or any of the facts misconceived in material particulars. If so we order a rehearing notwithstanding the opinion of the district court may be correct on its face, because the complaining

party has a right to the opinion of this court upon the precise case shown by the record."

The rule announced by *Burke v. Maze* has never been departed from in California. It must, therefore, be assumed that before denying a hearing in *Sinnott v. Schumacher,* supra, the Supreme Court reviewed the record and was satisfied that all the points involved were correctly decided.

In *Eisenberg v. Superior Court* (1924) 193 Cal. 575, 578, 226 Pac. 617, the court said:

> "* * * The order of this court denying a petition for a transfer to this court after said decision of the district court of appeal may be taken as an approval of the conclusion there reached, but not necessarily of all of the reasoning contained in that opinion."

It is the *conclusion* reached in *Sinnott v. Schumacher* upon which we rely here and under the rule announced by the California Supreme Court in the *Eisenberg* case that conclusion was approved by the Supreme Court of the state.

The Jurisdiction of the District Courts of Appeal is State-Wide.

While it is true, as stated in the opinion of the Circuit Court of Appeals, that California is divided into four districts in each of which sits a District Court of Appeal, the jurisdiction of those courts is not limited to the consideration of appeals from trial courts of the district in which they sit.

Article VI, section 4b, of the California constitution, in defining the jurisdiction of the District Courts of Appeal, states:

> "The district courts of appeal shall have appellate jurisdiction on appeal from the superior courts (except in cases in which appellate jurisdiction is given to the supreme court) in all cases at law in which the superior courts are given original jurisdiction. * * *"

It is to be noted that their jurisdiction is not confined to appeals from superior (trial) courts *in their respective districts.* They are given jurisdiction to hear appeals from *any superior court in the state* whether situated in their district or not and, as pointed out hereinafter, they frequently hear and decide appeals from superior courts in other districts which are transferred by the Supreme Court from one District Court to another.

They also have jurisdiction to hear and decide any case, even though originally appealable to the Supreme Court, which is transferred to them for decision. We quote further from Article VI, section 4b, of the California Constitution:

> "The said courts shall also have appellate jurisdiction in all cases, matters, and proceedings pending before the supreme court which shall be ordered by the supreme court to be transferred to a district court of appeal for hearing and decision." (The full text of Article VI, sections 4, 4a, 4b and 4c of the California Constitution defining the jurisdiction of the Supreme Court and

District Courts of Appeal of California is set forth in the appendix.)

Article VI, section 4c, of the same constitution, provides as follows:

> "§4c. *Transfer of cases between supreme and appellate courts.* The supreme court shall have power to order any cause pending before the supreme court to be heard and determined by a district court of appeal, and to order any cause pending before a district court of appeal to be heard and determined by the supreme court. The order last mentioned may be made before judgment has been pronounced by a district court of appeal, or within fifteen days in criminal cases, or thirty days in all other cases, after such judgment shall have become final therein. The judgment of the district courts of appeal shall become final therein upon the expiration of fifteen days in criminal cases, or thirty days in all other cases, after the same shall have been pronounced.
>
> "The supreme court shall have power to order causes pending before a district court of appeal for one district to be transferred to the district court of appeal for another district, or from one division thereof to another, for hearing and decision."

Article VI, section 4, of the state constitution contained almost identical provisions at the time *Sinnott v. Schumacher* was tried and appealed.

Under the authority thus conferred on it by the state constitution the California Supreme Court may,

and frequently does, transfer cases pending before it to the District Courts of Appeal and transfer cases pending before one District Court of Appeal to a District Court of Appeal for another district. The District Court of Appeal to which a case is so transferred has jurisdiction to hear and decide it even though it may be on appeal from the decision of a superior court in an entirely different district.

We have listed in the appendix a few of the cases in the District Courts of Appeal where those appellate courts have decided appeals from trial courts in other districts and have printed therein an excerpt from the seventh report of the Judicial Council of California showing the frequency of this practice in California.

It is clear that those courts have jurisdiction of appeals from any superior court in the state and that their jurisdiction is not limited to hearing appeals from superior courts in their own districts.

This Court Has Decided That the Courts of the United States Sitting in California Are Bound by Decisions of the California District Courts of Appeal Where the Supreme Court of California Has Denied a Rehearing After Decision of Such Courts.

In *Tipton v. Atchison, Topeka & Santa Fe Railway Co.* (1936) 298 U. S. 141, 56 S. Ct. 715, 80 L. Ed. 1091, this Court considered the question of whether the federal courts were bound to follow two decisions of the California District Courts of Appeal. While

it held they were not because the decisions were based on an erroneous conception of federal statutes, it said that they would have been if the state court decisions had been based on a construction of the California law.

The Court said, at page 149, of the decision of the Circuit Court of Appeals for the Ninth Circuit:

> "Whether this conclusion is right depends upon the force and effect of two District Court of Appeal decisions, which the Supreme Court of the State refused to review."

And, at page 151:

> "If these decisions of intermediate courts of appeal, and the refusal of the Supreme Court of California to review them, amount to no more than a judicial construction of the compensation act as having, by its terms, no application in the circumstances, they are binding authority in federal courts. * * *"

And, further, at page 152:

> "The Supreme Court of the State refused to review either of the cases although this court had recently defined the scope of the Safety Appliance Acts in the *Moore* and *Gilvary* cases. If we were convinced that the court acted solely upon a construction of the workmen's compensation law, uninfluenced by the decisions following the supposed authority of the *Rigsby* case, we should not hesitate to hold United States courts bound by such construction of the state statute. * * *"

It seems very clear from the foregoing that, so far as questions of state law are concerned, this Court considers decisions of the California District Courts of Appeal binding on the federal courts where the Supreme Court of California has denied a hearing.

See also *Ridge Company v. County of Los Angeles* (1923) 262 U. S. 700, 43 S. Ct. 689, 67 L. Ed. 1186, where the Court said, at page 708, of a decision of the California District Court of Appeal, on which the California Supreme Court had denied a hearing:

> "We necessarily accept, as a matter of state law, the holding of the District Court of Appeal that the proviso to §1241 of the Code made the resolutions of the Board of Supervisors conclusive evidence as to the necessity of taking these particular highways and the other matters therein specified. So construed it was held by that court not to be objectionable to any provision of the State or Federal Constitutions. *By this we are controlled so far as the provisions of the state constitution are concerned.*" (Emphasis ours.)

This Court has held that where the state court is an important tribunal its decisions should be followed.

Erie Railroad Co. v. Hilt (1918) 247 U. S. 97, 38 S. Ct. 435, 62 L. Ed. 1003.

This Court has granted certiorari to review a recent decision of the Circuit Court of Appeals for the third circuit which decided that it was not bound by a decision of the Court of Chancery of New Jersey be-

cause it was a court of original jurisdiction and not the highest state court.

> *Field v. Fidelity Union Trust Co.* (1939) (C. C. A. 3rd) 108 F. (2d) 531. Certiorari granted April 22, 1940, 60 Sup. Ct. 890, preliminary print official reports Vol. 309, No. 2, p. IV.

We respectfully urge that the federal courts are bound by the decisions of the District Courts of Appeal in California, for, as we have hereinbefore pointed out, jurisdiction of those courts is not limited to their own districts but is state-wide, and their decisions are binding on all courts of first instance and all intermediate appellate courts in the state. We think that this Court has already decided in the *Tipton* and *Rindge Company* cases, supra, that the federal courts are so bound, particularly where the California Supreme Court has refused a hearing after decision in the District Court of Appeal.

The Circuit Court of Appeals in this case, by its opinion herein, asserts that it has been substituted for the California Supreme Court as the appropriate court of appeal and in the performance of that function will regard the decision of an intermediate court of appeal as persuasive, but not controlling, citing as authority for the statement *Wichita Royalty Co. v. City National Bank of Wichita Falls* (1939) 306 U. S. 103, 59 S. Ct. 420, 83 L. Ed. 515 (R. 2629-30).

The *Wichita* case is not, in our opinion, authority for the proposition for which it has been cited. That case was first tried in the state court and appealed to the Texas Supreme Court which reversed and remanded the cause for a new trial and stated the applicable principles of law for guidance of the trial court. After the cause was remanded, it was removed to the federal District Court and after trial there was appealed to the Circuit Court of Appeals. In denying a petition for rehearing after the decision of this Court in *Erie Railroad Co. v. Tompkins,* the Circuit Court of Appeals held that it was not obligated to follow the earlier decision of the Supreme Court of Texas because it thought a later decision of the Supreme Court of that state had modified the rule announced in the earlier state court decision.

The statement in the opinion of the Circuit Court of Appeals in this case is apparently based upon the following language in the opinion in the *Wichita* case, at page 107:

> "In departing from the 'law of the case,' as announced by the state court, and applying a different rule, the court below correctly stated that *by reason of the removal* it had been substituted for the Texas Supreme Court as the appropriate court of appeal and that it was its duty to apply the Texas law as the Texas court would have declared and applied it on a second appeal if the cause *had not been removed.* It was the duty of the federal court to apply the law of Texas as declared by its highest court." (Emphasis ours.)

It was only *because the case had been removed* to the federal courts that the Circuit Court of Appeals was substituted as the court of appeal. If we correctly interpret that decision this Court was commenting only upon the unusual situation which had arisen in that case. It was not announcing any rule that the Circuit Courts of Appeals generally are in the position of the state courts of last resort and free, therefore, to overrule, or disregard decisions of lower state courts because it disagrees with them and thinks the highest state courts would have done so.

This Court further held that the Circuit Court of Appeals was in error in holding that the later decision of the Supreme Court of Texas had modified the earlier. It said at page 110:

> "We think that the opinion of the Supreme Court of Texas in the present case has not been modified by the *Quanah* case and must be accepted as stating the law of Texas; and that it affords the appropriate guide for the District Court so far as it may be applicable to the facts which have been developed on the trial there."

It seems very clear to us from what was actually decided in that case that this Court did not consider the Circuit Court of Appeals a court of coordinate power with the state Supreme Court in deciding what the state law might be. The question of the power of the federal courts to disregard decisions of lower state courts was not at all involved. As the Court said, at page 107:

"* * * the only question for our decision is whether the Court of Appeals rightly concluded that the state court had thus altered its opinion."

We submit that the case is not authority for the broad proposition announced by the Circuit Court of Appeals in the instant case and that its decision is contrary to the principles there applied.

POINT B.

THE CIRCUIT COURT OF APPEALS ERRED IN HOLDING THAT THE STIPULATION IN THE CONTRACT FOR LIQUIDATED DAMAGES WAS VALID UNDER THE LAW OF CALIFORNIA.

The paragraph of the contract providing for liquidated damages has been quoted supra, pages 12 and 13.

The validity of agreements in contracts whereby the damages to be paid in the event of a breach are determined in anticipation thereof is regulated by statute in California.

Section 1670 of the California Civil Code provides as follows:

"Every contract by which the amount of damage to be paid, or other compensation to be made, for a breach of an obligation, is determined in anticipation thereof, is to that extent void, except as expressly provided in the next section."

Section 1671 of the California Civil Code provides as follows:

"The parties to a contract may agree therein upon an amount which shall be presumed to be

> the amount of damage sustained by a breach thereof, when, from the nature of the case, it would be impracticable or extremely difficult to fix the actual damage."

The general rule in many states is that where the amount of liquidated damages fixed is reasonably related to actual damage the agreement will be sustained. This rule, however, is not applicable in California.

> *Moore v. Investment Properties Corporation* (1934) (C. C. A. 9th) 71 Fed. (2d) 711, 718.

Under the above quoted Code sections a party seeking to recover liquidated damages must plead and prove that from the nature of the case it would be impracticable or extremely difficult to fix the *actual damage.*

The Circuit Court of Appeals in this case recognizes and states this rule (R. 2624) and as we agree with this particular statement of that Court we shall not, in the interest of brevity, discuss it further.

As hereinbefore stated at page 14, respondent, in an effort to meet this burden, pleaded three items of damage from delay. They were (1) cost of continued operating overhead of respondent, (2) bond interest, and (3) loss to the general public.

The Circuit Court of Appeals rightly held (R. 2625) that it was neither impracticable nor extremely difficult to ascertain respondent's operating overhead and

that this item did not remove the clause in the contract from the ban of the statute.

That Court did not comment on the item of bond interest. All of respondent's bonds were issued in May, 1932, and were payable serially on specified dates and carried a fixed rate of interest which did not vary with the date of completion of the contract work (R. 2546-7). Delay in the completion of the project did not increase the obligations of respondent either as to principal or interest on its bonds. But, as in the case of the operating costs of respondent, the amount of interest payable on the bonds during any delay was easily capable of exact ascertainment and no such item of damage would support a provision in a contract for liquidated damages in California. It was a mere matter of arithmetical calculation.

The Circuit Court of Appeals held the clause of the contract for liquidated damages valid on the sole ground that delay in completion of the project would result in loss, not to respondent, but to resident taxpayers thereof. It cites (R. 2626) a number of cases from other jurisdictions in support of its decision on this point. As stated above, the general rule by which the validity of such clauses is measured in most of the states does not prevail in California. In that State the clause must meet the test prescribed by the statute. In relying upon and applying the rule of other jurisdictions having no statute similar to that of California the Court fell into error. It should have

decided the point with reference to the California rule, not the general rule.

The only California case cited by the Circuit Court of Appeals, *City of Oakland v. De Guarda* (1928) 95 Cal. App. 270, 272 Pac. 779, 273 Pac. 819, is very different from this. In that case the city recovered on a bond of a contractor who defaulted in the performance of a contract to improve a street. The work was being done under a statute whereby most of the cost of the work was assessed directly against the property owners. In a detailed analysis of the statute the court points out that the city was acting in the capacity of a trustee for the property owners and that the property owners were the persons beneficially interested in the performance of the work. Furthermore, it appeared that the damages were actual, definite and certain and that the persons who suffered them and the amount suffered by each could be definitely determined. In concluding its opinion, at page 286, the court states that the recovery by the city was for the use and benefit of the property owners and that it would be a wrongful act for the city to convert the money to its own use.

The cross-complaint in this case is not based upon any theory that respondent seeks recovery as a trustee. It asks for damages for its own use and benefit.

We have found no California case directly in point. However, the meaning of the statute seems perfectly clear from the mere reading of it. There must be

actual damage which it would be impracticable or extremely difficult to fix before the clause is valid. Actual damage to whom? Obviously to the parties, not to third persons. The statute is very restrictive, making every such stipulation void except such as comply with the stated exception and there is nothing in the exception which authorizes an agreement to pay liquidated damages to a *party thereto* because *others* may suffer damages from its breach which would be difficult to fix. It merely permits, in a defined case, the parties to agree upon the amount of damages to *them* from a breach and to substitute such agreed damages for actual damages. It does not authorize an agreement to pay liquidated damages where there are no actual damages.

Rispin v. Midnight Oil Co. (1923) (C. C. A. 9th) 291 Fed. 481, 484.

This clause of the contract (p. 12, supra) itself expressly states that the amount of $500.00 per day is "agreed upon as a measure of damage to the *District* (respondent) by reason of delay in completion of the work; it being expressly stipulated and agreed that it would be impracticable to estimate and ascertain the actual damages sustained by the *District* under such circumstances. * * *"

Thus by the very terms of the contract the liquidated damages are stated to be damages agreed upon in lieu of actual damages to one of the parties. The contractor made no promise to pay any such agreed

sum in lieu of damages which third parties might suffer from delay.

The clause was not inserted in this contract for the benefit of the resident taxpayers of respondent. They do not seek to recover on it and respondent has shown no damage to itself from delay in completion of the work which could not be easily and exactly determined. Its showing of speculative damage to the general public is, we submit, insufficient to entitle it to recover liquidated damages for delay under the rule in California that a party seeking such damages has the burden of proving that such party would suffer actual damages impracticable or extremely difficult to fix. The fact that the contract stipulates that there would be such damage is insufficient. It must be proved by independent facts.

Robert Marsh & Co., Inc., v. Tremper (1930) 210 Cal. 572, 576; 292 Pac. 950.

It is submitted that, in enforcing this clause and affirming the judgment for liquidated damages on the cross-complaint the Circuit Court of Appeals failed to apply the law of California as expressed in the statutes thereof and substituted a general rule, not applicable in California, in lieu thereof and, in so doing decided contrary to the rule announced by this Court in *Erie R. R. Co. v. Tompkins,* supra, and other cases, that the Courts of the United States are bound by the law of the states in which they sit whether expressed by their statutes or in decisions of their courts.

It is respectfully submitted that the writ should issue.

Dated: San Francisco, California, July 17, 1940.

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(APPENDIX FOLLOWS)

Appendix

Constitution of California, Article VI, Section 4:

"*Jurisdiction of supreme court and courts of appeal.* The supreme court shall have appellate jurisdiction on appeal from the superior courts in all cases in equity, except such as arise in municipal or justices' courts; also, in all cases at law which involve the title or possession of real estate, or the legality of any tax, impost, assessment, toll, or municipal fine also, in all such probate matters as may be provided by law; also, on questions of law alone, in all criminal cases where judgment of death has been rendered; the said court shall also have appellate jurisdiction in all cases, matters and proceedings pending before a district court of appeal, which shall be ordered by the supreme court to be transferred to itself for hearing and decision, as hereinafter provided. The said court shall also have power to issue writs of mandamus, certiorari, prohibition, and habeas corpus, and all other writs necessary or proper to the complete exercise of its appellate jurisdiction. Each of the justices shall have power to issue writs of habeas corpus to any part of the state, upon petition by or on behalf of any person held in actual custody, and may make such writs returnable before himself or the supreme court or before any district court of appeal, or before any justice thereof, or before any superior court in the state, or before any judge thereof."

Constitution of California, Article VI, Section 4a:

"*Appellate districts.* The state is hereby divided into three appellate districts, in each of which there shall be a district court of appeal, consisting of such number of divisions having three justices each as the legislature shall determine; and until so determined otherwise, the courts of appeal for the first and second appellate districts shall each consist of two divisions, and the court of the third appellate district shall consist of one division.

"The legislature may from time to time create and establish additional district courts of appeal and divisions thereof and fix the places at which the regular sessions thereof shall be held and may provide for the maintenance and operation thereof. For that purpose the legislature may redivide the state into appellate districts, subject to the power of the supreme court to remove one or more counties from one appellate district to another as in this section provided.

"Each of such divisions shall have and exercise all of the powers of the district court of appeal.

"The district court of appeal as existing immediately prior to the approval and ratification of this amendment by the people shall not be affected thereby as to the officers or terms of office of the justices thereof.

"Upon the creation of any additional division of the district court of appeal the governor shall appoint three persons to serve as justices thereof until the first day of January after the next general elec-

tion. The justices of said division elected at such general election shall so classify themselves by lot that one of them shall go out of office at the end of four years, one of them at the end of eight years, and one of them at the end of twelve years, and entry of such classification shall be made in the minutes of said division, signed by the three justices thereof, and a duplicate thereof filed in the office of the secretary of state.

"The justices of the district courts of appeal shall be elected by the qualified electors within their respective districts at the general state elections except as provided in section 2¾ of article II; and the term of office of said justices shall be twelve years from and after the first day of January next succeeding their election.

"If any vacancy occur in the office of a justice of the district courts of appeal, the governor shall appoint a person to hold office until the election and qualification of a justice to fill the vacancy. Such election shall take place at the next succeeding general state or primary election after the first day of April next succeeding the occurrence of such vacancy; the justice then elected shall hold office for the unexpired term; provided, that whenever the term of office of the justice whose place is filled by appointment is fixed by law to expire on the first day of January after the next or such succeeding general election, then the person so appointed to fill the vacancy shall hold office for the remainder of such unexpired term.

"One of the justices of each of the district courts of appeal, and of each division of said courts, shall be the presiding justice thereof, and as such shall be appointed or elected, as the case may be.

"In cases wherein the presiding justice is not acting, the other justices shall designate one of their number to perform the duties and exercise the powers of presiding justice.

"The presence of two justices shall be necessary for the transaction of any business by such court except such as may be done at chambers, and the concurrence of two justices shall be necessary to pronounce a judgment.

"No appeal taken to the supreme court or to a district court of appeal shall be dismissed for the reason only that the same was not taken to the proper court, but the cause shall be transferred to the proper court upon such terms as to costs or otherwise as may be just, and shall be proceeded with therein as if regularly appealed thereto.

"All statutes now in force allowing, providing for or regulating appeals to the supreme court shall apply to appeals to the district courts of appeal so far as such statutes are not inconsistent with this article and until the legislature shall otherwise provide.

"The first district shall embrace the following counties: San Francisco, Marin, Contra Costa, Alameda, San Mateo, Santa Clara, Fresno, Santa Cruz, Monterey and San Benito.

"The second district shall embrace the following counties: Tulare, Kings, San Luis Obispo, Kern, Inyo, Santa Barbara, Ventura, Los Angeles, San Bernardino, Orange, Riverside, San Diego and Imperial.

"The third district shall embrace the following counties: Del Norte, Siskiyou, Modoc, Humboldt, Trinity, Shasta, Lassen, Tehama, Plumas, Mendocino, Lake, Colusa, Glenn, Butte, Sierra, Sutter, Yuba, Nevada, Sonoma, Napa, Yolo, Placer, Solano, Sacramento, El Dorado, San Joaquin, Amador, Calaveras, Stanislaus, Mariposa, Madera, Merced, Tuolumne, Alpine and Mono.

"The supreme court, by orders entered in its minutes, may from time to time remove one or more counties from one appellate district or another, but no county not contiguous to another county of a district shall be added to such district.

"Said district courts of appeal shall hold their regular sessions respectively at San Francisco, Los Angeles and Sacramento, and they shall always be open for the transaction of business."

(A fourth District was created by the California legislature in 1929, California Statutes 1929, p. 1202.)

Constitution of California, Article VI, Section 4b:

"*Jurisdiction of district courts of appeal.* The district courts of appeal shall have appellate jurisdiction on appeal from the superior courts (except in cases in which appellate jurisdiction is given to the supreme

court) in all cases at law in which the superior courts are given original jurisdiction; also, in all cases of forcible or unlawful entry or detainer (except such as arise in municipal, or in justices' or other inferior courts); in proceedings in insolvency; in actions to prevent or abate a nuisance; in proceedings of mandamus, certiorari, prohibition, usurpation of office, removal from office, contesting elections, eminent domain, and in such other special proceedings as may be provided by law; also, on questions of law alone, in all criminal cases prosecuted by indictment or information, except where judgment of death has been rendered.

"The said courts shall also have appellate jurisdiction in all cases, matters, and proceedings pending before the supreme court which shall be ordered by the supreme court to be transferred to a district court of appeal for hearing and decision. The said courts shall also have power to issue writs of mandamus, certiorari, prohibition and habeas corpus, and all other writs necessary or proper to the complete exercise of their appellate jurisdiction. Each of the justices thereof shall have power to issue writs of habeas corpus to any part of his appellate district upon petition by or on behalf of any person held in actual custody, and may make such writs returnable before himself or the district court of appeal of his district, or before any superior court within his district, or before any judge thereof."

Constitution of California, Article VI, Section 4c:

"Transfer of cases between supreme and appellate courts. The supreme court shall have power to order any cause pending before the supreme court to be heard and determined by a district court of appeal, and to order any cause pending before a district court of appeal to be heard and determined by the supreme court. The order last mentioned may be made before judgment has been pronounced by a district court of appeal, or within fifteen days in criminal cases, or thirty days in all other cases, after such judgment shall have become final therein. The judgment of the district courts of appeal shall become final therein upon the expiration of fifteen days in criminal cases, or thirty days in all other cases, after the same shall have been pronounced.

"The supreme court shall have power to order causes pending before a district court of appeal for one district to be transferred to the district court of appeal for another district, or from one division thereof to another, for hearing and decision."

Cases Pending in the District Court of Appeal in One Appellate District and Transferred to Another Appellate District by Order of the Supreme Court.

Centrifugal National Concentrator Company v. Eccleston, 122 Cal. App. 698.

Pending in *Second* Appellate District.

Transferred to *Third* Appellate District.

City of Los Angeles v. Hall, 103 Cal. App. 460.

Pending in *Second* Appellate District.

Transferred to *First* Appellate District.

Dooley v. Johnson, 133 Cal. App. 459.
Pending in *Fourth* Appellate District.
Transferred to *First* Appellate District.
Muller v. John J. Davi & Bro., 131 Cal. App. 156.
Pending in *Third* Appellate District.
Transferred to *First* Appellate District.
McKinney v. Wright, 105 Cal. App. 401.
Pending in *Fourth* Appellate District.
Transferred to *Third* Appellate District.
People v. Frank, 132 Cal. App. 360.
Pending in *Second* Appellate District.
Transferred to *Fourth* Appellate District.
Jenkins v. Board of Civil Service Commissioners, 137 Cal. App. 410.
Pending in *Second* Appellate District.
Transferred to *First* Appellate District.

The foregoing are illustrative only. Many similar cases of transfer from one district to another for hearing and decision could be cited.

Excerpt from the Seventh Report of the Judicial Council of California (Covering Period July 1, 1936, to June 30, 1938)

The following is quoted from page 30 of the above Report:

"It is perhaps well to explain that in the exercise of the power of the Supreme Court to transfer cases from itself to the district courts of appeal and in an endeavor to hold the several districts as nearly as possible in equitable balance, many cases, which would

have been sent to the second appellate district had it been sufficiently manned, have been transferred from the Los Angeles Supreme Court district to the first and third appellate districts and considered and disposed of by those courts; also that since creation of the fourth appellate district court in 1929, practically all appeals to the Supreme Court from the counties within that district, as well as a substantial number originating in the present second appellate district, have been transferred to the fourth appellate district for hearing and determination."

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In the Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

Supreme Court, U. S.
FILED
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CHARLES ELMORE CROPLEY
CLERK

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Petitioners,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Respondent.

PETITIONERS' REPLY BRIEF

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I.

REASONS FOR PETITIONERS' REQUEST FOR CERTIORARI IN THIS CASE.

The basis upon which we request this Court to issue its writ of certiorari in this case is that the United States Circuit Court of Appeals for the Ninth Circuit, contrary to prior decisions of this Court, has declined to follow and apply the law of California in a cause tried in a District Court of the United States for the Northern District of that State. The brief of respondent in opposition to the petition tends to confuse this primary issue by the inclusion therein of a rather extensive argument attempting to show that the case of *Sinnott v. Schumacher* (1919) 45 Cal. App. 46, 187 Pac. 105, does not decide what the Circuit Court of Appeals held that it decided and by a further argument that, even if the Circuit Court of Appeals was in error in affirming the judgment for liquidated damages, the petition should be denied because respondent is entitled to actual damages in a similar amount. Neither proposition urged by respondent is sound, as we shall hereinafter point out, but, before answering these arguments, we desire to make clear the reasons for requesting that the decision of the Circuit Court of Appeals be reversed.

The Circuit Court of Appeals has announced in its opinion rendered in this case that it is not bound by a decision of a District Court of Appeal of California which the Supreme Court of the State refused to review.

If certiorari is denied in this case and the opinion of the Circuit Court of Appeals is permitted to stand it will be followed hereafter by that Court and the District Courts in the Ninth Circuit and probably in other Circuits. As we pointed out, at pages 21 and 22 of our opening brief, this will inevitably lead to the application, in many cases, of one rule in the federal trial courts and another in the state trial courts.

Is a decision of a District Court of Appeal of California, a court with broad appellate jurisdiction, the decisions of which are binding on state trial courts and, as we contend, on courts of coordinate appellate jurisdiction, which decision the State Supreme Court has refused to review, likewise binding on federal courts or are the federal courts free to disregard such decision and apply their own rules? The opinion of the Circuit Court of Appeals in this case presents that question squarely. The correct answer is a matter of public concern. It will affect the rights, not only of the litigants now before the Court, but the rights and obligations of the many who will hereafter engage in litigation in the United States District Courts. It is submitted that the doubt should now be set at rest by an authoritative decision by this Court.

We have pointed out in our brief in support of the petition the importance of the decisions of the California District Courts of Appeal in shaping the law of this State. Their original appellate jurisdiction is very broad and their jurisdiction to hear and decide cases transferred to them by the Supreme Court is coordinate with the jurisdiction of that Court itself (appendix pp. v and vi, opening brief).

Their jurisdiction is not limited to deciding appeals from trial courts in their own districts (opening brief pp. 24-27).

The jurisdiction of these Courts and the binding effect of their decisions have been fully set forth in our opening brief and in the interest of brevity we respectfully refer the Court to that brief.

Respondent relies upon *People v. Davis* (1905) 147 Cal. 346, 81 Pac. 718, to support its assertion that the denial by the Supreme Court of a hearing, after decision by the District Court of Appeal, is not an approval of the propositions of law set forth in the opinion of the District Court of Appeal. But, as we pointed out at pages 22-24 of our opening brief, the rule is different where the case is originally appealed to the Supreme Court and thereafter transferred to the District Court of Appeal for hearing. That was the situation in *Sinnott v. Schumacher.*

We have set forth in our opening brief our construction of prior decisions of this Court and we merely affirm, without repetition, what we have said

there. We think the decisions cited at pages 27-29 of that brief are decisive of the point.

II.

THE DECISION IN SINNOTT V. SCHUMACHER, 45 CAL. APP. 46, 187 PAC. 105, DECIDED SQUARELY THE POINT THAT THE LIQUIDATED DAMAGE CLAUSE IN A CONSTRUCTION CONTRACT DOES NOT APPLY AFTER ABANDONMENT.

On this point the Circuit Court of Appeals agrees with petitioners (R. 2629). Respondent takes the position (pp. 24-29 of its brief) that both that Court and petitioners are incorrect in their interpretation of the holding in that case and quotes in the appendix to its brief excerpts from the record and briefs in the *Sinnott* case which it claims support its argument.

The *Sinnott* case was very similar to the case at bar. There, as here, the contractor claimed that the owner had breached the contract by failing to make progress payments that were due. There, as here, the contractor rescinded and sued for the value of the work done. There, as here, the owner answered and filed a cross-complaint against the contractor for breach of contract. In both cases the owner, in the cross-complaint, asked for damages from delay. The only difference is that in this case the owner sought to recover liquidated damages under the liquidated damage clause in the contract whereas in the *Sinnott* case

the owner ignored the liquidated damage clause and asked for actual damages from delay (Paragraph V, cross-complaint, appendix p. i, respondent's brief). The trial court found that the contractor had abandoned the contract and allowed the owner actual damages for delay (Paragraph VI findings, appendix p. i, respondent's brief).

The contract in that case contained a provision for liquidated damages to be paid by the contractor for delay in the amount of ten dollars per day. We have printed that part of the contract in the appendix here to.

In his opening brief the contractor (appellant) specifically attacked this finding of the trial court awarding *actual* damages for delay and contended that the maximum amount which the owner could recover as damages from delay was the liquidated damages provided in the contract (Excerpt from plaintiff's opening brief printed at appendix pages i to iii of respondent's brief).

The owner (respondent) specifically answered this contention in his reply brief and made the distinction between the right to recover actual damages for delay in case of an absolute breach and "special damage under the terms of the contract *had it been otherwise fulfilled.*"* (Appendix page iv, respondent's brief).

The issue was thus squarely presented to the Appellate Court as to whether the liquidated damage pro-

*Emphasis throughout this brief is supplied unless otherwise indicated.

vision of the contract governed the amount of damages for delay after abandonment of the contract and it was held that it did not. The Court said, at page 52:

> "As to the appellants' contention that the court was in error in its finding and conclusion as to the amount of damages sustained by the defendants and cross-complainants by reason of the plaintiff's unjustified abandonment of work upon said building, and his failure, neglect, and refusal to complete the same, it may be stated that this contention is based upon the clause in the contract which relates to the matter of delay in the time of completion of said building and which purports to fix a penalty of fifty dollars per day for such delay; *but this provision of the contract has no application to a condition wherein the contractor is shown to have abandoned his contract without sufficient cause,* in which case the right of the defendants to damages as a result of the plaintiff's breach of said contract could not be affected or limited by said provision of the contract for a penalty for delay in the completion of the structure beyond the stipulated time for such completion."

If, as the Court clearly held, the liquidated damage clause has no application after abandonment, no recovery by the owner under it can be had in such case. It cannot logically be said that this provision of the contract remains binding on the contractor but not on the owner. It is either mutually enforceable by both parties after abandonment or it ceases to be binding on either. The Circuit Court of Appeals was

correct in holding that the decision in *Sinnott v. Schumacher* on this point was adverse to its own decision in this case.

The Circuit Court of Appeals states that although there was a petition for hearing by the Supreme Court of California in the *Sinnott* case it was not on the point here involved.

While it is true that this point was not *argued* in the petition, the entire opinion of the District Court of Appeal was a part of the petition and before the Supreme Court for review. As we pointed out in our brief in support of this petition (pp. 22-24), the *Sinnott* case was first properly appealed to the Supreme Court and then referred to the District Court of Appeal for hearing. In such cases the rule is that the Supreme Court, on petition to it for a hearing, reviews not only the opinion to see whether it correctly states the law but examines the entire record (See quotation from *Burke v. Maze* (1909) 10 Cal. App. 206, 101 Pac. 438, at page 23 of our brief in support of the petition).

The decision in *People v. Davis* (1905) 147 Cal. 346, 81 Pac. 718, cited at page 16 of respondent's brief and other cases cited at page 17 thereof, state the rule in cases which are *originally* appealable to the District Courts of Appeal and have no application to the *Sinnott* case.

Under the rule which governed consideration of the petition for hearing in the *Sinnott* case the Supreme Court would not have denied the petition unless

it considered the opinion of the District Court of Appeal correct not only on its face but on a review of the entire record. Furthermore, the point involved appeared clearly in the opinion of the District Court of Appeal.

III.

THE CIRCUIT COURT OF APPEALS ERRED IN APPLYING THE RULE WHICH PREVAILS IN OTHER JURISDICTIONS, BUT NOT IN CALIFORNIA, IN DECIDING THAT THE LIQUIDATED DAMAGE CLAUSE IN THE CONTRACT WAS VALID.

It has long since been decided by this Court that where a state statute establishes a rule of law the federal courts must follow it. We have pointed out, at pp. 33-38 of our opening brief, that the validity of liquidated damage provisions in contracts is governed entirely by statute in California and that the Circuit Court of Appeals sustained the clause in this contract by applying, not the California statute, but a general rule prevailing in other jurisdictions. We submit that in so doing it committed error. To avoid repetition, we respectfully refer the Court to the argument in our opening brief on this point.

IV.

THE STATEMENT IN PETITIONERS' BRIEF IN SUPPORT OF THE PETITION THAT RESPONDENT NEITHER PLEADED NOR ATTEMPTED TO PROVE ACTUAL DAMAGES IS ACCURATE AND CORRECT.

Respondent, at pages 5-9 of its brief, states that petitioners are inaccurate in stating that respondent neither pleaded nor attempted to prove actual damages. At pages 33-35 of its brief respondent argues that even if it is not entitled to liquidated damages for delay it is entitled to actual damages in the amount of the judgment. As these two contentions are related, we shall make one answer to them.

(a) The pleadings.

The cross-complaint seeks only enforcement of the liquidated damage clause of the contract. In paragraph XI (R. 53) it alleges the delay. In paragraph XII (R. 55) it refers to the liquidated damage provision. In paragraph XIII it alleges that the actual damage would be extremely difficult to estimate and sets forth the facts upon which it relies to prove, *not actual damages, but that such damages would be extremely difficult to estimate.* In paragraph XIV (R. 57) it alleges that it claims *"the sum of $206,500.00 as agreed and liquidated damages."* Nowhere in the cross-complaint does respondent ask actual damages for delay.

(b) Theory on which evidence on damage was admitted at the trial.

The record is very clear that the evidence on all of these items was offered, not for the purpose of

proving actual damages, but for the sole purpose of sustaining the validity of the liquidated damage clause by showing that actual damages would be extremely difficult to determine.

When such evidence was first offered, petitioners objected upon the ground, among others, that it was an attempt to prove "damages which are speculative and not in any manner within the purview of any theory upon which they (respondent) might recover under this cross-complaint" (R. 2518).

Counsel for respondent then specifically limited the purpose of the offer to prove that the liquidated damage clause was reasonable and expressly stated that respondent did not ask anything but liquidated damages (R. 2519-20, quoted at appendix pages iv and v of respondent's brief).

Respondent admits all this in its brief at page 34.

After the evidence was closed and both parties had rested (R. 2562), counsel for respondent made a motion for judgment on the cross-complaint (R. 2562). In making that motion he stated,

> "This motion is * * * also for liquidated damages at the penalty prescribed in the amount of $500 per day. *We are not asking for special damages for delay, but rely upon the penalty for liquidated damages.*" (R. 2563).

Petitioners then moved to strike this evidence from the record (R. 2564). One of the grounds of the mo-

tion was that the elements of damage sought to be established were remote and speculative (R. 2565).

In replying to this motion counsel for respondent stated:

> "Mr. Wittschen: Your Honor, so that the record may be clear, that portion of plaintiff's motion which is directed to the cost of protecting the work and taking care of the project until new bids were called is an element of damage that springs from the breach. *The cost of the bond issue, the interest on the bonds, the cost as shown to the traveling public, and those matters that counsel claims are speculative were not offered and we are not asking for those as specific items of damage. They were merely offered to show two things, one that the liquidated damages were not unreasonable, and also to show the difficulty of the proof of actual damages.* The law in California is that where actual damages cannot be proven, or that their proof will be extremely difficult, the parties may agree upon reasonable stipulated liquidated damages, and as I said before and now repeat we are not asking for double damages, we are not asking for damages in excess of the penalty of $500 a day, but we are asking for damages for that penalty because we think it is reasonable, and because it comes within the rule."

After the arguments on the motions for judgment on the cross-complaint (R. 2592) counsel for respondent made the statement set forth in the appendix to respondent's brief at pages vii to ix upon which it

places its entire reliance for the contention that it sought and proved actual damages from delay. Respondent states in its brief, at page 35, that it stated before the case was concluded that it wished the damage item of $272.89 a day, the cost of keeping the District intact, and the interest charges of $89,832.67 considered for all purposes and that it took the position at the trial that it wished to have evidence before the Court to sustain an award for actual damages for delay if liquidated damages were denied.

The portion of the record quoted by respondent does not support the foregoing statements in its brief. All that counsel for respondent said in that quotation was that respondent wanted the evidence as to those items considered as proving *facts*. He did not ask that they be considered as proof of actual damage. Of course, they proved facts, but proof of those facts was offered only for the purpose of sustaining the liquidated damage clause.

In any event, counsel for petitioners promptly objected to the evidence being considered for any purpose other than that for which it was offered (R. 2596-99) and Court was adjourned for the day without the Judge taking any action on the request of respondent (R. 2599).

On the following day (the last of the trial) counsel for respondent did not renew his request, or ask the Court to rule on it, or make any offer of this evidence for the purpose of proving actual damages and the

case was submitted without any ruling whatever by the Court on respondent's request (R. 2600-2610). The Court did not even rule on petitioners' motion to strike (R. 2607-10). Obviously, the mere statement of counsel, made after all the evidence was closed, that he wished this evidence considered as proof of facts, with no attempt made to reoffer it and with no ruling of the Court on even this narrow request that certain of the evidence be considered as proof of facts cannot be considered as converting evidence, admitted at the trial for the limited purpose of proving that actual damage was impossible or extremely difficult to prove, into proof of actual damages which would support a judgment.

(c) Even if respondent had claimed actual damage from delay it offered no competent evidence to prove such damage.

The alleged damage to the public was not damage to respondent. The project being constructed was a free public highway and respondent could suffer no damage in loss of revenue from delay in its completion (R. 2530).

Respondent cannot recover as actual damages interest on its bonds. It sold the bonds before it entered into the contract and the bonds and the interest thereon were unconditionally payable whether respondent ever completed its project or not (R. 2546-7). The amount payable was not increased by one cent by any delay which may have occurred in completing the

contract work. Respondent was required to pay this interest as a result of a contract made with the purchasers of the bonds, not as a result of any breach of the construction contract.

The daily cost of operating respondent is not a proper item of actual damage. If respondent had offered evidence of direct costs necessarily increased by the delay, it might contend that there was some proof in the record of actual damage from delay. But it did not do this. It simply proved its daily operating costs. It admitted that the $272.89 per day figure included costs not attributable to delay in the completion of this work, that such proof "was not offered as an exact item of damage" and that it did not ask the Court so to consider it.

We quote from the record:

"Mr. Wittschen:

"* * * *The actual damages for delay cannot be proven.* Take, for instance, the construction of a city hall, take a school building, it is impossible to show just what the inconvenience and damage would be to the public that want to use a new school building or to the public that wanted to use a city hall. We have merely shown, your Honor, we had several millions of dollars invested in this project, and that the cost on that alone amounted to more than $200 a day. We have also shown, your Honor, that the cost of keeping the District intact amounted to $278 a day. It is perfectly obvious that you cannot get that cost down to exact refinement. *The District*

will have to keep some nominal assistance as long as the bond issue holds; in fact, there would be no cost if the county would take that over, it is hard to say, the District may have to keep this force going for some days, even after this contract has been completed, to do certain check-up work. That $278 was not offered as an exact item of damage, and we are not asking your Honor to consider it as such, but the people who really lose the benefit of this tunnel are not alone the people residing in the District who use it, but they are the entire traveling public up and down the State.

"The Court: It is my thought on that that we are getting into the realm of speculation.

"Mr. Wittschen: That is why you have liquidated damage, because you cannot prove the actual damage; if the actual damages could be proven we would have to prove them, we could not have liquidated damages, and the Code provision provides, I think it is Section 1671 of the Civil Code—I will get it if your Honor wants it accurately." (R. 2568-2569)

There is no competent evidence of any actual damage to respondent from delay in the record and any judgment for actual damage would be wholly unsupported.

(d) Judgment and opinions of the Courts below.

The judgment of the District Court for delay was based entirely on the liquidated damage clause in the contract and was for liquidated, not actual, damages (R. 217). The opinion of the District Court (R. 130)

and the Circuit Court of Appeals (R. 2623) both show clearly that those Courts were considering only the right of respondent to liquidated damages and the respondent's right to, or the amount of, its actual damages was not even considered.

If respondent had any intention of contending that it was entitled to actual damages for delay it, by its repeated assertions and arguments as to the purpose for which it offered this evidence, misled petitioners and misled the Courts below.

It is submitted that the statements in our brief in support of our petition that respondent neither pleaded nor attempted to prove actual damages are entirely accurate and correct and that respondent is now at this late date attempting to get this Court to consider evidence for an entirely different purpose from that for which it was admitted and is attempting to change the entire theory upon which it tried, and represented to petitioners and the lower Courts it was trying, this issue of the case.

CONCLUSION.

We have attempted to confine this brief to answering new matters presented in respondent's brief and have avoided, so far as possible, repetition of points fully argued in our opening brief. This was done for the purpose of brevity and we reaffirm all the points asserted by us in the opening brief.

Dated: San Francisco, California, September 17, 1940.

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(APPENDIX FOLLOWS)

Appendix

The liquidated damage provision in the contract in the case of *Sinnott v. Schumacher,* 45 Cal. App. 46, 187 Pac. 105, was as follows:

> "Should the Contractor fail to complete this contract and the work provided for within the time set for completion as aforesaid, due allowance being made for the contingencies provided for herein, he shall then become liable to the Owner for all loss and damages which the Owner may suffer on account thereof, in the sum of Ten Dollars per day, which the Contractor hereby agrees to deduct from his contract price, for each day that the work shall remain unfinished beyond such time for completion.
>
> "The agreement in this paragraph made for damages is made as herein set forth for the reason that the actual damage which will be sustained by the Owner by reason of the Contractor's breach of the covenant to complete this contract within the time stated is from the nature of the case impracticable and extremely difficult to fix; and one of the considerations moving the owner to enter into this contract with the contractor is the agreement of the contractor to complete his said contract within the time herein stated and the liquidated damages herein above stated for his failure to do so."

In the Supreme Court of the United States

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OCTOBER TERM 1940

No. 267

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Petitioners,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Respondent.

Brief of Respondent in Opposition to Petition for Writ of Certiorari.

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In the Supreme Court of the United States

OCTOBER TERM 1940

No. 267

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Petitioners,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Respondent.

Brief of Respondent in Opposition to Petition for Writ of Certiorari.

STATEMENT OF THE CASE.

1. The issue in this court.

Petitioner, Six Companies of California, hereinafter will be referred to as "Contractor". The remaining petitioners, all surety companies, sureties on the faithful performance bond of the Contractor given in connection with the contract hereinafter mentioned, will be referred to as "Sureties". Respondent, Joint Highway District No. 13 of the State of California, a public corporation of the State of California, will be referred to as "District".

On June 4, 1934, the Contractor agreed with the District to construct a highway, which included twin tunnels, for the sum of $3,683,931 (Finding VII, R. 146-7; Pl's. Ex. 16, Vol. VIII Book of Exhibits 157, 162). Upon completion the same was to become a free public highway of the State of California (R. 2530). On June 13, 1936, when the work was about 70% complete (Finding XIII, R. 183) the Contractor wrongfully abandoned the same (Finding XIV (Par. 9), R. 188). The Contractor claimed a right to rescind the contract, abandoned the work (Finding IX, R. 148) and brought suit against the District for the sum of $3,259,695.04, the difference between the alleged reasonable value of the work performed and the sums theretofore paid the Contractor by the District (R. 3-5). With reference to the time of completion, the contract provided that time was "of the essence hereof" (Pl's. Ex. 16, Vol. VIII Book of Exhibits 157, 163).

The District filed a cross complaint against both the Contractor and the Sureties claiming three items of damage because of the Contractor's breach of contract, as follows:

(1) $69,001.85, the reasonable expense of protecting the work, and incidental expense to which the District was put because of the abandonment (Cross Complaint IX, R. 50-2);

(2) $108,066.31, the increased cost to the District of completing the work under new contracts over and above the original contract price after giving the Contractor credit for all sums earned by the Contractor before abandonment but not yet paid (Cross Complaint X, R. 52-3); and

(3) $206,500 damages for delay for 433 days' delay caused by the Contractor's abandonment, at the stipulated sum provided in the agreement of $500 a day as liquidated damages for delay (Cross Complaint XI, XII, R. 53-5; XIV, R. 57-9).

The petitioners (Contractor and the Sureties) in asking for certiorari herein do not question the correctness of the findings in the main case which find that the Contractor wrongfully abandoned the work and was entitled to no damages against the District (Finding L, R. 216; Conclusions of Law Par. 1, R. 216). Neither do petitioners complain of the amounts awarded the District for the damage noted under sub-paragraphs (1) and (2) above.

Petitioners' sole claim for relief in this court is that liquidated damages for delay were improperly allowed[1] (Petitioners' Brief pp. 5, 12-13).

The court's findings on delay and the sufficiency of the evidence to support these findings are not challenged. The

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(1) Unless otherwise stated all emphasis appearing herein is supplied.

court found that the following delays were occasioned through the fault of the Contractor (Finding XXXIII, R. 199-201).

(a) 20 days' delay before the contract was abandoned from May 24, 1936, when completion was due, to June 13, 1936, when abandonment took place (R. 199-201).

(b) 149 days' delay, the reasonable time required for the District to measure the unfinished work, prepare new specifications for bids, secure new bids and let new contracts (R. 200-1).

(c) 264 days' delay, the reasonable time required to complete the work abandoned by the Contractor after new contracts were let (R. 200-1).

The aggregate delay was a *total of 433 days* (R. 201).

The trial court found that 149 days was a reasonable time for the District to measure the work and do all the things mentioned in subparagraph (b) above; and the court also found that the District proceeded with all reasonable dispatch so to do (R. 200). The trial court, however, did not allow the District any liquidated damages for this 149 days' delay (Finding XXXVI, R. 204; Conclusions of Law Par. 3, R. 217). The theory of the trial court was that after abandonment the court was limited to awarding liquidated damages for delay to the period prior to abandonment and to such additional period as represented the reasonable time to complete the work, and that no other delay could be considered (Opinion of Trial Court R. 137-140). This ruling was in favor of petitioners and eliminated 149 days' delay from consideration. The District took no

appeal therefrom; therefore that matter is not now before this court. Because of this ruling the amount awarded as liquidated damages was $142,000 instead of $206,500, pleaded and proved by the District.

Two contentions only are urged by petitioners on this court:

1. Under California law no liquidated damages are recoverable for delays which occur *after* abandonment. Petitioners concede that if liquidated damages are allowable, the award of $10,000 under (a) above for 20 days' delay *before* abandonment was proper.

2. Petitioners also claim that under California law no award whatever for liquidated damages should have been made.

Thus the only matter before this court is the correctness of the award for liquidated damages of $142,000, and under one contention of petitioners $10,000 of this sum is not questioned. We challenge each of these contentions.

2. Errors in petition and petitioners' brief.

There are certain inaccuracies in the petition and in Petitioners' Brief which should be noted. Petitioners, at page 4, say:

> "Respondent neither pleaded nor attempted to prove it had sustained any actual damage from any delay."

Again, at page 13, they say:

> "The cross complaint neither alleged nor asked any actual damages from delay, but the part thereof claiming damages from delay was based entirely on

the quoted provision in the contract for liquidated damages (R. 53-58)."

The statement that the District neither pleaded nor proved actual damages for delay is in error. In both pleading and proof the District claimed substantial actual damage from delay in addition to the other items of damage resulting from abandonment, which we have mentioned, separate and apart from delay, such as increased cost of completing the work, cost of protecting and measuring the work, and the other incidental items hereinbefore referred to (supra, p. 3) which are alleged in paragraphs IX and X of the cross complaint (R. 50-3).

Pleading of actual damage and of liquidated damage.

The damages resulting solely from delay are pleaded in paragraphs XII and XIII of the cross complaint (R. 55-7). Therein it is alleged that the District itself sustained an actual damage of $272.89 a day, the expense of a staff of engineers and other employees and in keeping a District organization intact. This expense would have ceased upon completion of the project (R. 57). It was also alleged that during the period of 433 days' delay the District was required to pay interest on its outstanding bonded indebtedness amounting to $89,832.67 without having the enjoyment of the completed project (R. 57). It was also alleged that the project provided an improved highway with easier grades and a shorter route between portions of the state of California and the cities of Oakland and San Francisco (R. 56). That more than 1,600,000 vehicles a year traveled the former routes which the new

highway was to supplant all of which traffic could be more safely and economically transported over the new highway; that the resulting loss, inconvenience and damage caused by delay in opening the project for use as a public highway was exceedingly great and impracticable of exact ascertainment, but exceeded $500 a day (R. 56).

Proof of actual damage and of liquidated damage.

At the trial the average cost of operating the District during the period of delay was proved to be $272.89 a day (R. 2522-4, 2534-6; Ex. X-114 Book of Exhibits Vol. VIII 595). It was also proved that the interest charges during the period of delay for interest on the District's outstanding bonds for the project was $89,832.67 (Ex. X-115; R. 2527-8). The proof also showed that independent of this actual damage to the District *as a public corporate entity* there was other damage not capable of exact ascertainment. The importance of the new highway was conceded. The number of vehicles using the old routes which the new highway was to replace was testified to as 1,911,870 vehicles annually, an average of 5,238 vehicles a day (R. 2532). There was an average saving of two miles by use of the new highway over the existing routes (R. 2532). Based upon the number of vehicles using the old highway there was a loss of $419.04 a day to the traveling public in extra cost for transportation alone because of inability to use the new route (R. 2544-6).

No evidence was introduced by the petitioners to contradict the proof of the District with reference to any of the above items of damage.

Finding of actual damage and of liquidated damage.

The court's findings on all items of damage are in accord with the District's proofs (Finding XXXV, R. 202-4). The court also found that the daily expense to the District of $272.89 a day would be entirely eliminated upon completion of the project (R. 203). The amount paid as interest was also found (R. 204). The court also found that the loss caused by the delay in opening the project was great, was incapable of exact ascertainment, but exceeded $500 a day (R. 203). Likewise it is found that a total of 433 days' delay was caused by the abandonment (Finding XXXIII, R. 199-201).

3. The actual damages caused by the delay exceed the amount awarded as liquidated damages.

It should be noted that the actual damages which the District itself suffered from delay exceed the $142,000 awarded as liquidated damages. Interest during the 433 day period of delay on the District's outstanding bonds, issued to finance the project, amounted to $89,832.67 (R. 203-4). Expense of operation during this period is 433 times $272.89 (the per diem cost of operation) or $118,161.37. The total of the two items is $207,994.04.

If we take the lesser period of delay of 284 days, for which the trial court allowed liquidated damages, the actual damage to the district, *as a public corporate entity*, approximates the liquidated damages allowed.

284 times $272.89 is	$ 77,500.76
The interest item for the 284 day period is	58,920.28 (R. 2528)
Total	$136,421.04

The above calculations are without any consideration whatever of the very real additional damage of over $500 a day suffered by those of the traveling public who could have used the highway if completed.

The findings that the delay was entirely the fault of the Contractor are not questioned by petitioners. The allowance of liquidated damages for delay instead of actual damages for delay lessened the liability of the Contractor and the Sureties.

SUMMARY OF ARGUMENT.

1. The decision in the California case of *Sinnott v. Schumacher* does not control the decision in the instant case.

(a) The decision in *Sinnott v. Schumacher*, 45 Cal. App. 46, 187 Pac. 105, was by one of the four intermediate appellate courts in the State of California and not by the highest court of the state. The law as announced by the highest court of a state, not by an inferior court, is the law which the Federal courts are required to follow.

(b) The denial by the Supreme Court of California of a petition for a hearing in that court after a decision by a District Court of Appeal does not mean approval by the Supreme Court of the opinion and decision of the lower court. Such denial means only that the Supreme Court in the exercise of a sound discretion did not deem the case, or the matters decided therein, of sufficient importance to warrant that court entertaining the peti-

tion. In determining whether or not a decision by a District Court of Appeal should be reviewed by the Supreme Court of California, the position of that court is like the position of this court in determining whether or not a writ of certiorari should issue to a circuit court of appeals.

(c) The decision of one District Court of Appeal in the State of California is not binding upon another District Court of Appeal. It would be an anomaly to hold that the United States Circuit Court of Appeals is bound by such decision when neither the Supreme Court of the State nor the other District Courts of Appeal of the State are so bound.

(d) The District Courts of Appeal in California are not courts of statewide jurisdiction.

(e) When a reference is had to the record in the *Sinnott* case, and the decision in that case is read in the light of the record, it clearly appears that the District Court of Appeal did not decide that liquidated damages could not be recovered for any delay which occurred after abandonment of the contract. On this point the opinion in that case does not discuss the facts, or cite any authoritly, or reason the matter in any way. Only by a reference to the record in the case can it be determined what the issues were and what the court meant by the language of its opinion. The defendants (building owners) had recovered a substantial award for damages resulting from the increased cost of completing the work after abandonment. Upon appeal by the defaulting contractor the appellant contended that the contract provi-

sion for liquidated damages for delay, was a limitation on the owners' right to recover other damages caused by the abandonment, such as the award for increased cost of completion.

Where the court, in the opinion of *Sinnott v. Schumacher* (45 Cal. App. 46), at page 52, said:

> "* * * but this provision of the contract has no application to a condition wherein the contractor is shown to have abandoned his contract without sufficient cause, in which case the right of the defendants to damages as a result of the plaintiff's breach of said contract could not be *affected or limited* by said provision of the contract for a penalty for delay in the completion of the structure beyond the stipulated time for such completion."

the court was answering the contention of the contractor therein that the liquidated damage clause in the contract *limited or affected* the right of the owners to recover the full measure of their damage due to the increased cost of completion. The court did *not* decide that liquidated damages for delay could not be recovered after abandonment in a proper case, but did decide that the trial court had properly allowed the owners their actual damage for the increased cost of construction, and that the right to recover such damage was not affected because there was a liquidated damage clause in the contract.

(f) The opinion in *Sinnott v. Schumacher* cannot be regarded as authority settling an important question of local law. It is not of sufficient importance to warrant the Supreme Court of the United States reviewing

the action of the Circuit Court of Appeals in the instant case.

2. The stipulation in the contract providing for liquidated damages is a valid provision under the law of the State of California.

3. The liquidated damage clause is valid and the case was tried by the District on that assumption, but even if invalid, such holding would be of no benefit to petitioners because the actual damage suffered by the District as a public corporate entity exceeds the amount awarded to the District as liquidated damages.

ARGUMENT.

I.

DISCUSSION OF THE EFFECT OF THE DECISION IN THE CASE OF SINNOTT v. SCHUMACHER.

a. The Federal courts are required to follow the law of the State of California as announced by the highest court in the state.

Petitioners' position on this point is that *Sinnott v. Schumacher,* 45 Cal. App. 46, 187 Pac. 105, even though not a decision of the California Supreme Court, the highest court in the state, announces the law in California and until that holding is set aside by decision of the California Supreme Court the same should be followed by the Federal courts in this case.

In this reasoning petitioners are in error and misconstrue the decision of *Erie Railroad Co. v. Tompkins,* 304 U. S. 64, 58 S. Ct. 817, 82 L. Ed. 1188. The *Erie* case and the later decision by this court in *Lyon v. Mutual Benefit etc. Assn.,* 305 U. S. 484, 59 S. Ct. 297, 83 L. Ed. 303, which follows the rule of the *Erie* case, recognize that it is the law as announced by the *highest* court in the state which the Federal courts should follow.

We have examined the decisions since the pronouncement in *Erie Railroad Co. v. Tompkins,* supra, and have noted below Federal cases on appeal which cite the *Erie* case.[2] In all of these cases recognition is given

(2) *Lyon v. Mutual Benefit Health & Acc. Assn.,* 305 U. S. 484, 59 S. Ct. 297, 83 L. Ed. 303, 307; *Sommer v. Nakdimen,* 97 F. (2d) 715, 719 (1938) (C. C. A. 8th); *Perkins v. U. S.,* 99 F. (2d) 255, 258 (1938) (C. C. A. 3rd); *Rosenthal v. N. Y. Life Ins. Co.,* 99 F. (2d) 578, 579 (1938) (C. C. A. 8th); *American Nat. Ins. Co. v.*

to the fact that it is the state law as pronounced by its *supreme* or *highest* court which becomes the rule of decision.

The precise point was passed upon in the case of *West v. American Tel. & Tel. Co.*, 108 F. (2d) 347 (1939) (C. C. A. 6th). The reasoning of the lower court in the instant case is confirmed by that opinion. See, also, the decision in *Field v. Fidelity Union Trust Co.*, 108 F. (2d) 521, 523 (1939) (C. C. A. 3rd), cited at page 30 of Petitioners' Brief. The opinion in that case sums up the matter as follows (526):

> "We believe that the proper rule is that federal courts should in all instances follow the law of the state with respect to the construction of the state statutes. Where that law has been determined by the courts of last resort their decisions are stare decisis, and must be followed irrespective of our opinion as to what the law ought to be. As to the pronouncements of other state courts, however, *we*

Belch, 100 F. (2d) 48, 50 (1938) (C. C. A. 4th); *Luhman v. Hoover*, 100 F. (2d) 127, 129 (1938) (C. C. A. 6th); *Wunderlich v. Franklin*, 100 F. (2d) 164, 166 (1938) (C. C. A. 5th); *North American Acc. Ins. Co. v. Anderson*, 100 F. (2d) 452, 455 (1938) (C. C. A. 10th); *Kansas Gas & Electric Co. v. Evans*, 100 F. (2d) 549, 550 (1938) (C. C. A. 10th); *Colorado Life Co. v. Steele*, 101 F. (2d) 448, 450 (1939) (C. C. A. 8th); *Aetna Life Ins. Co. v. Conway*, 102 F. (2d) 743 (1939) (C. C. A. 10th); *Rodgers v. Mabelvale etc. Imp. Dist.*, 103 F. (2d) 844, 846 (1939) (C. C. A. 8th); *Futrell v. Branson*, 104 F. (2d) 409, 410 (1939) (C. C. A. 8th); *Baskin v. Montgomery Ward & Co.*, 104 F. (2d) 531, 533 (1939) (C. C. A. 4th); *National Candy Co. v. Fed. Trade Com.*, 104 F. (2d) 999, 1005 (1939) (C. C. A. 7th); *Investors Syndicate v. Smith*, 105 F. (2d) 611, 620 (1939) (C. C. A. 9th); *N. Y. Life Ins. Co. v. McCurdy*, 106 F. (2d) 181, 187 (1939) (C. C. A. 10th); *Demers v. Railway Express Agency*, 108 F. (2d) 107, 109 (1939) (C. C. A. 1st); *Abbott v. Railway Express Agency*, 108 F. (2d) 671, 672 (1940) (C. C. A. 4th).

are not so bound, but may conclude that the decision does not truly express the state law."

The fact that certiorari was granted recently by this court in *Field v. Fidelity Union Trust Co.,* supra, where the Circuit Court of Appeals for the Third Circuit decided it was not bound by the decision of a court other than the Supreme Court of the State of New Jersey, furnishes no precedent for granting certiorari in the instant case. In the *Field* case the decision of the state court which the Circuit Court of Appeals failed to follow, clearly decided a point of local law, but the United States Circuit Court of Appeals differed with the conclusion of the state court. While the opinion in the *Sinnott* case is not clear, the fact is, that the *Sinnott* case did not decide the point of law which the Circuit Court of Appeals herein assumed it did decide. On the contrary, the point of law which the Circuit Court considered was decided in the *Sinnott* case was never in issue in that case (infra pp. 24-8).

Compare also the decision of this court in *Burns Mortgage Co. v. Fried,* 292 U. S. 487, 54 S. Ct. 813, 78 L. Ed. 1380, 92 A. L. R. 1193, wherein this court ruled that a state statute which codifies the common law becomes a matter of local law, and the rule of decision of the *highest* court of the state is the rule which the Federal court should follow. Also, that in the absence of a decision by the *highest* court of the state the Federal courts were free to decide the controversy in accordance with the accepted canons of construction.

See, also,

Russell v. Todd, ... U. S. ....., 60 S. Ct. 527, 84 L. Ed. 517 (advance opinions);

Wichita Royalty Co. v. City Nat. Bank, 306 U. S. 103, 107, 59 S. Ct. 420, 83 L. Ed. 515, 517.

When this court used the term "highest court of the state" it did so advisedly.

The opinion of the Circuit Court of Appeals herein notes the fact that while there was a petition for a hearing in the State Supreme Court after decision in the District Court of Appeal in the *Sinnott* case the petition to the State Supreme Court *"was not on this point"*. (R. 2629). The highest court of the state was not asked to review the point here in question. This disposes of the argument made in Petitioners' Brief to the effect that the denial of a hearing by the California Supreme Court made the decision of the District Court of Appeal *stare decisis.*

b. In California the denial by the Supreme Court of a petition for hearing therein after decision by a District Court of Appeal does not mean approval by the Supreme Court of the opinion and decision of the lower court.

Petitioners argue contrary to the rule stated in the above caption, but the cases do not support them.

The leading case on this point is *People v. Davis,* 147 Cal. 346, 350, 81 Pac. 718. In that case the California Supreme Court said:

> "It is proper to add that the denial in any case of an application for the transfer of a case decided by a district court of appeal is not to be taken as an

expression of an opinion by this court, or as the equivalent thereof, in regard to any matter of law involved in the case and not stated in the opinion of that court, nor, indeed, *as an affirmative approval by this court of the propositions of law laid down in such opinion.* The course to be pursued by this court in the exercise of its power in any case is a matter in which the objects above stated are the controlling considerations, and it will not hold itself bound even where questions of law alone are involved, to order a transfer of the cause, after a decision of the district court, except where it shall appear necessary in order to carry out the above-stated purposes of securing uniformity of decision and the settlement of important questions of law. The significance of such refusal is no greater than this—*that this court does not consider that the interests of justice, or the purposes for which the power was given, require its exercise in the particular case.*"

This principle of law has received repeated approval by the California Supreme Court. Cases approving this holding are:

Bohn v. Bohn, 164 Cal. 532, 537, 129 Pac. 981;

In re Stevens, 197 Cal. 408, 423, 241 Pac. 88;

People v. Rabe, 202 Cal. 409, 418, 261 Pac. 303;

Seney v. Pickwick Stages, 206 Cal. 389, 391, 274 Pac. 536;

Shelton v. Los Angeles, 206 Cal. 544, 550, 275 Pac. 421;

Western Lithograph Co. v. State Bd. of Equalization, 11 Cal. (2d) 156, 157, 78 Pac. (2d) 731.

It will be noted from the above cases that the position of the Supreme Court of California in passing upon petitions for hearing in the Supreme Court after decision by a District Court of Appeal is not unlike the position of the Supreme Court of the United States in passing upon petitions for the issuance of a writ of certiorari. The considerations which prompt this court to grant such petition have been heretofore stated by this court a number of times. For convenience of reference we quote a short excerpt from one of the cases aptly stating the rule:

> *Magnum Import Co. v. Coty,* 262 U. S. 159, 163, 43 S. Ct. 531, 67 L. Ed. 922, 924.
>
> "The jurisdiction to bring up cases by certiorari from the circuit courts of appeals was given for two purposes: first, to secure uniformity of decision between those courts in the nine circuits; and, second, to bring up cases involving questions of importance which it is in the public interest to have decided by this court of last resort. The jurisdiction was not conferred upon this court merely to give the defeated party in the Circuit Court of appeals another hearing."

See also cases infra, pages 28-9.

c. The California District Courts of Appeal have held, and the California Supreme Court recognizes, that the decision of a District Court of Appeal in one district is not binding on another.

The argument made at page 20 and the following pages of Petitioners' Brief to the effect that the decision of one District Court of Appeal in California binds the others, particularly when a petition for a hearing has been made

to the Supreme Court after decision in the District Court of Appeal and that petition has been denied, is not a correct statement of the law.

The effect of a refusal to transfer a case to the Supreme Court after decision by a District Court of Appeal has been settled by the decision in *People v. Davis,* supra, and the decisions noted in the previous subdivision of this brief which affirm the rule of the *Davis* case. Notwithstanding the clearcut holding of the *Davis* case, some decisions of the District Courts of Appeal have, without citation of the *Davis* case, or of any other decision of the California Supreme Court affirming the rule in the *Davis* case, made general and loose statements to the effect that the denial of a petition for hearing in the Supreme Court gives a decision of a District Court of Appeal "all the authority of a pronouncement by the Supreme Court itself" (*Bridges v. Fisk,* 53 Cal. App. 117, 122, 200 Pac. 71). Such reasoning is contrary to the law of the state as established by *People v. Davis,* supra, and to the line of authority following that case.

The statement quoted above from *Bridges v. Fisk,* supra, and similar statements appearing in other cases cited at page 20 of Petitioners' Brief, are not necessary to the decisions in the several cases in which the statements are found.

That there is a conflict in the decisions of the several District Courts of Appeal in California on this point is recognized in the opinion of the Circuit Court of Appeals herein (R. 2629). In addition to the decisions noted in the opinion of the Circuit Court of Appeals, the hereinafter

mentioned cases all from District Courts of Appeal in California, either directly, or by implication, recognize that one District Court of Appeal is not bound by a decision in another. These cases are as follows:

Danley v. Superior Court, 64 Cal. App. 594, 599, 222 Pac. 362:

"And while it is true, as contended by the respondents, that the opinion and judgment of another department of the District Court of Appeal *is not binding upon this court,* nevertheless such opinion and judgment has its persuasive effect and if we agree both in the reasoning advanced and the conclusion reached it is our privilege and our duty to adopt the same."

McMillan v. Greer, 85 Cal. App. 558, 563, 566, 259 Pac. 995.

In this case the court expressly refused to follow the decision of another District Court of Appeal.

And in *Stone v. San Francisco,* 27 Cal. App. (2d) 34, 80 Pac. (2d) 175, the following appears (27 Cal. App. (2d) 37):

"Respondent relies principally upon Armas v. City of Oakland, 135 Cal. App. 411 (27 Pac. (2d) 666, 28 Pac. (2d) 422), *which case was repudiated* by Lossman v. City of Stockton, 6 Cal. App. (2d) 324 (44 Pac. (2d) 397), Rogers v. City of Los Angeles, 6 Cal. App. (2d) 294 (44 Pac. (2d) 465), and later by Raynor v. City of Arcata, 11 Cal. (2d) 113 (77 Pac. (2d) 1054)."

Notwithstanding that all but one of the decisions referred to are by District Courts of Appeal, it will be noted that

one District Court of Appeal "repudiated" the decision of another.

In *Raynor v. City of Arcata,* 11 Cal. (2d) 113, at page 120 (77 Pac. (2d) 1054), the Supreme Court of California recognizes this conflict in the decisions of the appellate courts. It is to be noted that despite the conflict the Supreme Court of California *has never ruled* that one District Court of Appeal is required to follow the decision of another. It would appear that if this were the rule the Supreme Court would long since have said so. Not only has the Supreme Court not said so but it has repeatedly reaffirmed the holding of *People v. Davis,* supra, to the effect that its refusal to hear a case decided by a District Court of Appeal does not imply an approval by the Supreme Court of the opinion of the lower court.

A District Court of Appeal in California is no more bound by a decision of another District Court than is one United States Circuit Court of Appeals bound by that of another circuit.

In *Skaggs v. Taylor,* 77 Cal. App. 519, 247 Pac. 218, cited by the lower court in its opinion and noted in Petitioners' Brief (page 20) the decision which was followed was a previous decision of the *same* District Court of Appeal.

It has also been held by the Supreme Court that a decision of a District Court of Appeal in a similar case *between the same parties, involving the same issues* which decision the Supreme Court refused to review after decision by the District Court of Appeal established no precedent which the Supreme Court was required to follow:

Bohn v. Bohn, 164 Cal. 532, 129 Pac. 981, the California Supreme Court saying (164 Cal. 537-8):

> "Our further examination of the case has led us to the conclusion that the Department opinion was correct. The principal reason for granting a hearing in Bank was that, in a case between the same parties, presenting precisely the same issues of fact and law, the district court of appeal for the second appellate district had reversed an order like the one here appealed from, and that a petition to have the appeal transferred to this court for hearing and determination had been denied. (Bohn v. Bohn, 16 Cal. App. 179, (116 Pac. 568).) It is, of course, much to be regretted that opposite rulings should be made in two cases which present identical questions. But an order by this court, refusing to transfer a cause after judgment in the district court of appeal, *does not adopt the opinion of the appellate court* so as to give it, in this court, the authoritative effect which one of our own decisions would have. Being now convinced that the order appealed from should be affirmed, we must so declare, even though this view necessarily involves the conclusion that the earlier appeal should have been transferred to this court, and thereupon disposed of by a judgment differing from that rendered in the district court of appeal. Indeed, believing, as we do, that the order now under review was properly made, it would be our duty to affirm it, even if this court had itself, in another case, reversed an order similar in all respects."

The case of *Eisenberg v. Superior Court,* 193 Cal. 575, 226 Pac. 617 (cited in Petitioners' Brief, page 24), does not say that the refusal by the Supreme Court to transfer a

case *shall* be taken as an approval of the conclusion reached by the District Court of Appeal, but merely states that it *may* be so taken.

If neither the Supreme Court of California, nor another District Court of Appeal is bound by a decision of a District Court of Appeal, but may "repudiate" such as one California case says, clearly neither the United States Circuit Court of Appeals nor this court is so bound.

d. The California District Courts of Appeal are courts of limited and not state-wide jurisdiction.

While it is true, as petitioners contend, that the California Supreme Court may transfer any case pending therein to any District Court of Appeal for decision and may also transfer a case from one District Court of Appeal to another, these District Courts of Appeal are nevertheless not of state-wide jurisdiction. California is divided territorially into four districts, each with a District Court of Appeal (R. 2629), and the various counties in the state are respectively allocated to one of these districts.[3] A case may be appealed from a Superior Court *only* to that particular District Court of Appeal to which said county is allocated.

Some of the material provisions of the present sections 4a, 4b and 4c of article VI of the California Constitution were once part of former section 4 of article VI. In so far as material to the decision of this case, however, the

(3) At pages iv and v of the Appendix to Petitioners' Brief the constitutional provisions for allocation of the several counties to the respective district courts of appeal are printed.

language of the Constitution in force when *Sinnott v. Schumacher* was decided was substantially the same as that of the present Constitution.[4]

It will be noted that the appellate jurisdiction of the District Courts of Appeal is limited except as to matters which are transferred to a District Court of Appeal by the Supreme Court, and that jurisdiction is not state-wide. But even if jurisdiction were state-wide, in view of the express limitations which have been placed upon their decisions by the Supreme Court of the State, their decisions, even when the Supreme Court refuses a hearing, are not those of the *highest* court in the state, which the Federal courts are required to follow.

e. In the case of Sinnott v. Schumacher the California District Court of Appeal did not hold that liquidated damages could not be awarded for delay caused by abandonment.

This case has been interpreted differently by the trial court and the Circuit Court of Appeals herein.

The two lower courts herein make different interpretations of the *Sinnott* case. At the trial petitioners relied upon two California cases which they argued held that liquidated damages for delay could not be recovered in California in the case of an abandoned contract. One of these was the *Sinnott* case, the other *Bacigalupi v. Phoenix Bldg. etc. Co.*, 14 Cal. App. 632, 112 Pac. 892. The position taken by petitioners in the trial court appears from the opinion of that court (R. 135-6). Petitioners in

(4) Excerpts from the California Constitution applicable to the district courts of appeal appear in the Appendix to Petitioners' Brief, pages i to vii.

the trial court made no distinction whatever between these two cases, but argued that each supported their contention that after abandonment liquidated damages for delay could not be recovered (R. 135-6).

The trial court held that while these cases permitted an aggrieved party to sue for the actual damage caused by abandonment *apart from damage caused by delay,* the rule in neither case prevented a party from recovering liquidated damages for delay (R. 136). Like petitioners, the trial court made no distinction on this point between the two cases, but it did not follow petitioners' interpretation of either (R. 136).

The opinion of the trial court regarding the *Bacigalupi* case is in accord with the interpretation of that case by the United States Circuit Court of Appeals for the Second Circuit in *Southern Pacific Co. v. Globe Indemnity Co.,* 21 F. (2d) 288 and by the Circuit Court of Appeals herein (R. 136). In distinguishing the *Bacigalupi* case the Circuit Court of Appeals herein said (R. 2628):

> "Bacigalupi v. Phoenix Bldg. etc. Co., 14 Cal. App. 632, 637, where *no damage was awarded for delay* and the appellant merely claimed that the liquidated damage clause for delay prevented a recovery for the increased cost of completing the building."

With reference to *Sinnott v. Schumacher,* however, the opinion of the Circuit Court of Appeals herein states as follows (R. 2628-9):

> "Appellants argue that we are bound by the decision of a California District Court of Appeal in Sinnott v. Schumacher, 45 Cal. App. 46, 52, 53. There

> the contractor had abandoned the contract and, while the fact does not appear on the face of the opinion, actual damages for delay were allowed in lieu of the liquidated amount. In that case there was a petition for hearing by the Supreme Court of the state, *but not on this point.* The decision is adverse to ours, but the court failed to consider the authorities and stated its mere conclusion without reasoning. The case is not persuasive, and we think was wrongly decided."

The Circuit Court of Appeals herein, by the extract of its opinion above quoted, points to the only difference between the *Sinnott* case and the *Bacigalupi* case. In the *Bacigalupi* case as the opinion in *Southern Pacific Co. v. Globe Indemnity Co.,* supra, and also the opinion of the Circuit Court Appeals herein states, there was no endeavor to recover *any* damages for delay. In the *Sinnott* case the owners did not seek *liquidated damages for delay,* but sought to recover actual damages only.

The record in the Sinnott case proves that liquidated damages were not sought therein; the Circuit Court of Appeals was in error in its interpretation of that case, and the construction of the Sinnott case by the trial court herein was the correct one.

The record in the *Sinnott* case shows that damages were allowed for the increased cost of completing the work over the contract price and other items caused by the breach including $2,641.14 damages for delay, the reasonable value of the use and rental of the building to be constructed for three months' delay at the rate of $880.38 per month. The pleadings did not ask for liquidated damages and there was *no issue on that question.*

In the appendix (page i) we have printed paragraph V of the amended cross-complaint in the *Sinnott* case, which shows that the pleading for damages for delay was for the reasonable monthly rental. This paragraph of the amended cross-complaint is the entire allegation thereof dealing with damages for delay. The findings of the court on this issue are likewise set forth in the appendix (page i) and are to the effect that the plaintiff was entitled to the reasonable market value of the use and rental of the building of $880.38 per month for three months, or a total of $2,641.14. We have also listed in the appendix (pages i to iv) quotations of the briefs of both the appellant and the respondent in the *Sinnott* case on the matter of the allowance of damages for delay. These extracts from the briefs show beyond any question that liquidated damages for delay were never an issue in the *Sinnott* case.

There is another fact which proves that such damages were never in issue. It is the rule in California that a claim for liquidated damages must be based upon a pleading affirmatively bringing the case within the exception stated in section 1671 of the California Civil Code:

Kelly v. McDonald, 98 Cal. App. 121, 125, 276 Pac. 404, 406;

Mente & Co. v. Fresno C. & W. Co., 113 Cal. App. 325, 331-3, 298 Pac. 126, 128, 129;

Long Beach City School Dist. v. Dodge, 135 Cal. 401, 405, 67 Pac. 499.

The excerpts printed in the appendix from the pleadings show that the only pleading in the *Sinnott* case for damages for delay sought *actual* damage for delay, that is to

say the reasonable market value of the rental of the building, as distinguished from liquidated damages for delay. There was no other pleading and the findings show no other issue on damage for delay.

f. The opinion in Sinnott v. Schumacher is too indefinite and the case not of sufficient importance to warrant this court reviewing the action of the lower court.

We have already pointed out that the trial court and the lower court made different interpretations of the ambiguous language of the opinion in the *Sinnott* case. Also that the record discloses that in the trial court petitioners concluded that the case of *Bacigalupi v. Phoenix Bldg. etc. Co.*, supra, and the *Sinnott* case decided the same principle of law. Each of the lower courts herein have ruled that the *Bacigalupi* case does not support petitioners' argument. We have shown that when the record in the *Sinnott* case is checked against the opinion in that case, it is clear the *Sinnott* case likewise does not support petitioners' argument and that the interpretation of the trial court herein is correct, that of the Circuit Court of Appeals wrong.

In *Layne and Bowler Corporation v. Weston Well Works, Inc.*, 261 U. S. 387, 393, 43 S. Ct. 422, 67 L. Ed. 712, 714, in speaking of the position of this court in granting certiorari on a conflict of decision between two Circuit Courts of Appeal this court announced the following rule:

> "If it be suggested that as much effort and time as we have given to the consideration of the alleged conflict would have enabled us to dispose of the case

before us on the merits, the answer is that it is very important that we be consistent in not granting the writ of certiorari except in cases involving principles the settlement of which is of importance to the public as distinguished from that of the parties, and in cases where there is a *real and embarrassing* conflict of opinion and authority between the *circuit courts of appeal.* The present case certainly comés under neither head."

In re Woods, 143 U. S. 202, 12 S. Ct. 417, 36 L. Ed. 125, wherein this court ruled (36 L. Ed. 126):

"But we do not regard the inquiry as to whether it was settled law in the State of Minnesota that a judgment of dismissal in a former suit, such as pleaded here, was not a bar to a second suit upon the same cause of action, or whether the law in respect of recovery by a servant against his master for injuries received in the course of his employment was properly applied on the trial of this case, as falling within the category of questions of such gravity and general importance as to require the review of the conclusions of the Circuit Court of Appeals in reference to them."

Certainly the vague and inconclusive opinion in the *Sinnott* case does not warrant this court in departing from the rule announced by its decisions in the two cases last cited.

g. Cases cited by petitioners under point A distinguished.

Petitioners in their brief (pages 27-33) cite several cases to the point that this court has held that United States courts sitting in California are bound by decisions

of California District Courts of Appeal where the Supreme Court of California has denied a hearing after decision in the District Court of Appeal.

In this contention petitioners are in error. The precise point whether a Federal court is bound by a decision of a state court other than the *highest* court of the state was not presented in any of the cases cited. Furthermore as the Circuit Court of Appeals noted in its opinion herein, in the *Sinnott* case a review by the California Supreme Court was not asked on the point material to this case (R. 2629).

If the Federal court is impressed with the reasoning of an intermediate state appellate court there is no rule which says that then the state court may not be followed. But this is quite different from saying that if the Federal court disagrees with the holding of an inferior state court the decision of the latter court *must* be followed. *Erie Railroad Co. v. Hilt,* 247 U. S. 97, 38 S. Ct. 435, 62 L. Ed. 1003 (cited in Petitioners' Brief, page 29) does not support the latter contention.

II.

THE CIRCUIT COURT OF APPEALS DID NOT ERR IN HOLDING THAT THE STIPULATION IN THE CONTRACT FOR LIQUIDATED DAMAGES WAS VALID UNDER THE LAW OF CALIFORNIA.

The argument under this heading is directed to Point B of Petitioners' Brief, pages 33-39 thereof. It is not the law in California that liquidated damages cannot be recovered in a contract such as that involved herein.

Section 1671 of the California Civil Code expressly provides:

> "The parties to a contract may agree therein upon an amount which shall be presumed to be the amount of damage sustained by a breach thereof, when, from the nature of the case, it would be impracticable or extremely difficult to fix the actual damage."

All that is required is that there shall be pleading and proof of the inability to fix the actual damage. Once that is established, the agreement for liquidated damages is enforceable, but the test of impracticability is to be applied *as of the date when the contract was made,* not after completion, nor at the time of trial (*Hanlon Drydock and Shipbuilding Company, Inc., v. McNear,* 70 Cal. App. 204, 232 Pac. 1002).

In the instant case the actual damage which would result from a failure to complete the contract on time could not be fixed with any certainty when the contract *was made.* The opinion of the Circuit Court of Appeals recites the facts which show the District both pleaded and proved this (R. 2625). The record supports the opinion (R. 55-7; 2522-4; 2534-6; 2527-8; 2532; 2544-6).

The opinion of the lower court is also supported by ample authority. In the interest of space we will not here recite that authority but refer to the opinion of the Circuit Court of Appeals and to the page of the record where these cases are collected (R. 2626). Petitioners have not pointed to any California case which holds that liquidated damages cannot properly be allowed in a case of this character. On the contrary it is the universal rule that

the principle which allows liquidated damages applies with special force to contracts for public improvements for the breach of which there may be no other adequate measure of damage. (See note appearing in 1912C Ann. Cases p. 1028; *Parker etc. Co. v. City of Chicago,* 267 Ill. 136, 107 N. E. 872, 1916C Ann. Cas. 337.)

A California case in point is *Consolidated Lumber Co. v. City of Los Angeles,* 33 Cal. App. 698, 166 Pac. 385, which involved a public contract where a clause for liquidated damages was upheld. In that case the court further ruled that a declaration in the contract that the damages for a breach thereof would be extremely difficult to fix (33 Cal. App. 700):

> "* * * tends strongly to establish the fact required by the statute to exist; and, further, tends to control the question as to whether the provision is one for liquidated damages or for a penalty, where the contract appears upon its face to be one allowed by the terms of section 1671 * * *"

Wise v. United States, 249 U. S. 361, 39 S. Ct. 303, 63 L. Ed. 647, was a case in this court where a clause providing for liquidated damages of $200 a day was upheld. Such sum was held to be reasonable where the cost of the buildings to be erected was approximately $1,000,000. The contract price for the improvement in the instant case was over $3,600,000 (Vol. VIII Book of Exhibits, Pl's. Ex. 16, p. 162). The liquidated damages of $500 a day here allowed is proportionately the same as that approved by this court in the *Wise* case.

Other cases in which this court affirmed the allowance of liquidated damages in construction contracts are cited in the opinion of the lower court (R. 2626). There was no error in the allowance of liquidated damages to the District.

None of the cases cited by petitioners under this point (Petitioners' Brief, pages 33-37), holds that liquidated damages cannot be awarded under the facts of the instant case.

III.

EVEN IF LIQUIDATED DAMAGES SHOULD NOT HAVE BEEN ALLOWED, THE DISTRICT WAS ENTITLED TO ITS ACTUAL DAMAGE FOR DELAY WHICH IN THIS CASE EXCEEDS THE AMOUNT ALLOWED AS LIQUIDATED DAMAGES.

A provision for liquidated damages cuts both ways. An illustration of this is found in the case of *Hanlon Drydock etc. Company Inc., v. McNear,* supra. There the liquidated damage clause which was held to be valid, provided for a payment of $400 a day for delay and the total liquidated damages allowed was $9,200. The contention on appeal was that the court should have held the provision for liquidated damages invalid and have awarded appellant the actual damage suffered of $60,000 in lieu of the lesser amount.

In the instant case the District is not seeking both liquidated and actual damages. The District tried the case on the theory that the liquidated damage clause was valid. If it is, as we believe it is, the clause controls the amount

which may be awarded as damages for delay, even though the actual damages exceed the stipulated liquidated amount. If the provision is invalid, as petitioners contend, then the District is entitled *to its actual damage* notwithstanding that this exceeds the liquidated damage. It is not the law that a contractor may breach a contract and deprive the aggrieved party of *all* damage.

The delay for 433 days at $272.89 a day (Ex. X-114, Book of Exhibits Vol. VIII 595), which was the amount found by the court to be the damage the District suffered in order to keep its organization intact, amounts to $118,-161.37 (R. 203). The interest on the outstanding bonds which the District had to pay during this period was $89,-832.67 (Ex. X-115; R. 2527-8; R. 204). The total damage to the District resulting from delay was, therefore $207,-994.04. The liquidated damages allowed were only $142,000. The difference is in petitioners' favor. We are not unmindful of the fact that petitioners undoubtedly will claim that the items of interest charges and the cost of operating the District were first placed in evidence by the District in order to show that the amount claimed as liquidated damages was reasonable, and to support its claim for liquidated damages (R. 2519-20; 2544-6). In that petitioners will be correct. The District tried the case on the theory that it was entitled to liquidated damages only (R. 2545; 2566-7; 2606-7). In addition to the expense to which the District was put because of the delay the District also placed before the trial court other evidence showing the great inconvenience, damage and delay suffered by the public apart from the damage to the District as a corporate entity (R. 2544-6).

Before the case was concluded, however, and in the course of the many attacks made by petitioners on the District's evidence, the District stated clearly and unequivocally that it wished the damage item of $272.89 a day, the cost of keeping the District intact and the interest charges of $89,832.67 during the period of delay *to be considered for all purposes* and as independent and substantive items of damage (R. 2595-9; 2610).

The District steadfastly argued for the integrity of the liquidated damage clause (R. 2519-20; 2544-6; 2567; 2606-7), but it is obvious from the position it took at the trial that it wished to have evidence before the court to sustain an award for actual damages for delay if the liquidated damage clause was to be ignored.

In the appendix to this brief (pages iv to ix) we have printed portions of the record showing the District's position on these items of damage.

The petitioners at the trial moved to strike out all evidence of the District regarding damages for delay, including not only the damage to the traveling public but the interest item and the daily expense item to the District during the period of delay (R. 2607-10). Thus, the Petitioners squarely presented their position to the court. They did this *after* the District had clearly defined its position that it wanted all evidence of delay considered *for all purposes.* Under these circumstances we contend that the evidence of delay which supports actual damage, as well as the evidence of delay which supports liquidated damage was properly before the court.

CONCLUSION

It is respectfully submitted that for the reasons stated the writ should not issue.

Dated: Oakland, California, August 21st, 1940.

ARCHIBALD B. TINNING,
THEODORE P. WITTSCHEN,
Attorneys for Respondent.

(APPENDIX FOLLOWS.)

Appendix

Excerpts from pleadings, findings and briefs in case of Sinnott v. Schumacher, 45 Cal. App. 46, 187 Pac. 105.

Paragraph V, Amended Cross-Complaint in Sinnott v. Schumacher.

"V. These defendants have been further damaged on account of the delay in the completion of said building, * * * to-wit: the period of three months, at the monthly rental of $124 (sic) a month, or $3,052; also the further sum of $1500 for attorney's fees to prosecute this action and for legal services in connection with the completing of the said building, and representing these defendants in different actions commenced to foreclose liens for work and labor performed under said plaintiff."

Paragraph VI, Findings in Sinnott v. Schumacher.

"VI. That by the acts of Sinnott and said Surety the defendants were reasonably and necessarily delayed in the completion of the building for the period of three months, and that the reasonable market value of the use and rental of said building, during said time, is the sum of $880.38 per month or total $2641.14, in which sum the defendants were damaged."

Excerpt from Plaintiff's Opening Brief, page 19, in Sinnott v. Schumacher.

"EIGHTH FINDING ATTACKED ($2641.14 rents). Find. VI, (Ax. IX.) That by delay in completion, owners were damaged in $2641.14. According to our evidence

there was no delay, but ignore our evidence and still defendants produced no evidence that Sinnott delayed the completion beyond 5 days, the damage for which under the contract is $10 per day or $50. We need not go to the reporter's notes for it is found (Find. IV, Ax. VIII), that Sinnott on Dec. 12 quit and wholly abandoned the said contract and work and since so continued to quit, and that on Dec. 14 owners gave Sinnott 3 days to go on with the work, which he did not do. Under the contract the owners on Dec. 17, had the right to enter upon the premises and furnish, etc. Said contract (Sec. 17, * * *, Tr. 2664) provides, that when the 3 days are up the owners shall then have the right to enter upon the premises and furnish (materials, etc.). And contract (Sec. 17, * * *) provides 'that whenever * * * the owner * * * shall have the right to enter upon the premises and furnish, etc., and shall exercise that right,—that from that time on the full direction and control of the completion * * * shall be under the direction of the owner and the authority of the contractor * * * shall cease.' Find. IV finds that Sinnott quit and abandoned on Dec. 12 and did so ever since. The owners' right accrued Dec. 17. Thence on Sinnott's 'authority ceased.'

From Dec. 12 to 17 is 5 days at $10 is $50. The contract fixes this as the maximum damage. It says damage for said delay shall be limited to a charge of $10 per day which is to be deducted from the contract price and is arbitrarily so fixed because the 'actual damage is from the nature of the case impracticable and extremely difficult to fix' (idem.) Besides this, Sinnott on Dec. 22 served owners with notice of rescission of contract (Tr. 1508) and that he would sue and he never was on the premises after Dec., 1914.

He filed this suit Jan. 13, 1915, and yet Find. VI, (Ax. IX) says we delayed them 3 months from (Find. V, Ax. IX) Dec. 20, 1914, to March 20, 1915, during most of this time we were trying parts of this case in court on the basis of a confessed abandonment by us because of the breach of contract. Such a finding is destitute of support."

Excerpt from Respondents' Reply Brief, page 35, in Sinnott v. Schumacher.

"The eighth finding attacked by appellant that by delay in completion owners were damaged in the sum of $2641.14;

Finding IV states:

'That said plaintiff Richard Sinnott after the execution of said contract and bond commenced to perform the work provided to be performed by the said contract and thereafter and to-wit, on the 12th day of December, 1914, voluntarily and without fault or provocation on the part of the defendants and cross-complainants, Maria Schumacher, H. W. Ludemann and Hermine Ludemann, or any of them, quit and wholly abandoned the said contract and the work he was then performing under and pursuant thereto * * * and that said Richard Sinnott and the said Pacific Coast Casualty Company thereupon and thereafter and without the fault of the owners wholly failed, neglected and refused to supply a sufficiency of any materials or workmen to complete the said contract or to perform the same.'

Finding VI:

'That by reason of the acts of the plaintiff, Richard Sinnott, and cross-defendant, Pacific Coast Cas-

> ualty Company, in abandoning said contract and the work therein provided to be done and in failing, neglecting and refusing to complete the said building and the said contract, said defendants and cross-complainants * * * were thereby deprived of the use, occupation, income and rental of the said premises and the building provided to be constructed thereon for the said period of three months and that the reasonable market value of the use, occupation and rental of said building and said premises during said time is and was the sum of $880.38 per month or the total sum of $2641.14.'
>
> This breach of the contract by appellant and his refusal to construct the building in accordance with his contract, *is an entirely different matter from and not to be confused with the question of delay* in time of completion as specified in the contract; the former is founded upon an absolute breach of contract and is for general damage, whereas the latter would be special damage under the terms of the contract had it been otherwise fulfilled."

Excerpts from record concerning damages for delay.

In connection with the testimony of Wallace B. Boggs, the following statements were made (R. 2519-20):

> Mr. Tinning (Counsel for District): The purpose of this offer, your Honor,—we have pleaded as one of the matters in this defense the penalty of $500 per day. We are offering this line of testimony to show, for instance, what the daily cost of operation of the District was. We also expect to offer proof with respect to the bond interest, and also with respect to the loss to the public by the fact they were unable to use this tunnel during the certain period of time.

Now, that proof simply goes to the point of the penalty being somewhere within striking distance of the actual loss incurred.

The Court: How is the Court going to measure that?

Mr. Tinning: I don't think the Court does, your Honor. I think, if we are entitled to a penalty, that the thing then is to determine the penalty itself is not unreasonable.

Mr. Smith (Counsel for Contractor): What did your Honor say? I did not hear your remark.

The Court: I inquired how the Court was going to determine any damage for the public using, or the failure to use, this tunnel. He answered that by saying it has to do with the penalty and the imposition of the penalty. The penalty itself is prescribed by——

Mr. Tinning: Yes, by that contract.

Mr. Smith: If they want to call it a penalty, let them accept that as his definition. The law in California provides you cannot enforce a penalty. I understood the theory was they were trying to recover on the basis of liquidated damages. They have no right to recover any penalty. The law is as clear as a bell on that, particularly because penalties are absolutely proscribed under our California law. You cannot recover a penalty. The assertion is made, in their cross-complaint, that it is a claim for liquidated damages.

The Court: I think we are confused. I don't think he expects to go beyond the penalty clause here.

Mr. Tinning: We don't expect to go beyond the liquidated damage clause. What we are showing is: it is part of the contract and it is not an unreasonable provision, in view of the situation that exists.

* * * * * * *

Record, pages 2566-67:

Mr. Wittschen (Counsel for District): Your Honor, so that the record may be clear, that portion of plaintiff's motion which is directed to the cost of protecting the work and taking care of the project until new bids were called is an element of damage that springs from the breach. The cost of the bond issue, the interest on the bonds, the cost as shown to the traveling public, and those matters that counsel claims are speculative were not offered and *we are not asking for those as specific items of damage.* They were merely offered to show two things, one that the liquidated damages were not unreasonable, and also to show the difficulty of the proof of actual damages. The law in California is that where actual damages cannot be proven, or that their proof will be extremely difficult, the parties may agree upon reasonable stipulated liquidated damages, and as I said before and now repeat *we are not asking for double damages,* we are not asking for damages in excess of the penalty of $500 a day, but we are asking for damages for that penalty because we think it is reasonable, and because it comes within the rule. And we rely upon the cases that are all in the last brief that I handed to your Honor, which I called "Defendant's First Supplemental Brief"—there are two or three cases in there that are squarely on the point; the latest, perhaps one of the best considered cases, is that City of Reading Case; and I have also put in numerous cases from California which hold that a penalty of this kind is proper or liquidated damages in lieu of the penalty.

• • • • • • •

Record, pages 2595 to 2598:

Mr. Wittschen (Counsel for District): If there is any doubt about it we would like to put Mr. Boggs on the stand and let them cross-examine him. Otherwise we want our statement accepted as a fact, that none of the costs of this litigation are reflected in Exhibit X-114. It is just the ordinary cost of continuing the District, the running expense of the District's operations. The cost of the engineers and other items of expense would have dropped the moment the job was finished, because the Counties took over the work.

The Court: If there is any question about it, that it is an incorrect statement, if you wish to call him in the matter——

Mr. Smith (Counsel for Contractor): I think I can clarify the matter. Wasn't the exhibit offered solely for the purpose of showing that you had an item of expense and not to prove the figures?

Mr. Wittschen: I wanted to straighten that out as soon as I had an opportunity to talk. I was going to then, but I would like to do it now, because Mr. Boggs is here. That item of $278 a day, the cost of keeping the District, is put in for a two-fold purpose. It was put in first to show that there was the actual expenditure as a fact, *and if there is anything in the record to the contrary it is now withdrawn,* because the intent was to put that in as a fact. The other item that we intended to put in as a fact was that there was $89,000 of bond interest during this time of delay. Those two things were facts, and when added together they total $500 (a day), and they were put in both as factual matters and also to show that the claim for liquidated damages was not unreasonable. The $419 a day which would be the cost

of people using the road because they had to travel two miles more was simply put in to show the difficulty in ascertaining actual damages; but the other two items, the cost per day of the District and the bond interest, were two elements of fact, and Mr. Marrin in his brief has regarded them as facts and has stated them as facts.

Mr. Marrin (Counsel for Contractor): Oh, no, just the reverse. I understood they were offered distinctly for the purpose of showing that the amount of damages was difficulty to fix, that they were not offered as facts and as a part of the actual damage.

Mr. Wittschen: *You have some basis for that* because it was stated in the paragraph along with the other items but now that this case is not closed and the controversy has arisen—we do not need to recall the witness—*I state to you now we want them considered over your objection as proof of a fact, and if you want to cross examine on them you may.*

Mr. Smith: At the time the evidence went in I happened to be conducting the questioning for the Six Companies, the plaintiff, and I objected to the testimony and your Honor admitted it subject to a motion to strike.

Mr. Wittschen: That is right.

Mr. Smith: On the same subject, there were three matters involved. There was this exhibit regarding the cost and maintenance of the District, which you called Cost maintenance of the District, I understood. Mr. Tinning was putting in the evidence. There was the Exhibit offered for the purpose of showing the amount of alleged bond interest, which they were paying every day, and then there was miscellaneous testimony, not in exhibit form, of the so-called traffic per day, and capitalized into an imaginary figure up

into the stratosphere somewhere, and I objected to all of those three items on the ground they were immaterial, and Mr. Wittschen said in so many words for the record that they were being offered for the sole purpose of showing the difficulty of showing liquidated damages.

The Court: He so stated now.

Mr. Smith: Yes.

Mr. Wittschen: No, I said that that speculative feature, the cost to the general public, was solely to show the difficulty of ascertaining the liquidated damages. I ask your Honor to consider, and if *there is any misunderstanding now is the time to straighten it out,* that the proof of $272.89 a day is not only for that purpose but it is actual proof of the loss that the District incurred, because the District, in taking care of this work, had to exist a certain time longer than it would have existed and that all that expenditure related to this work and was not just the work of maintaining the District, because the District had nothing else to do, and I want that showing considered, *and if they would like to cross examine further, because they misunderstood it,* or even if we did say it before, *we now correct it,* it was a misunderstanding, and we are willing that Mr. Boggs come back. I also want considered as a fact the interest matter because whether you agree it is an element of damage or not, it is a proven fact that the bonds carried so much interest, and there were so many bonds, and I would like both of those considered as facts.

FILE COPY

In the Supreme Court of the United States

OCTOBER TERM, 1940

No. 267

SIX COMPANIES OF CALIFORNIA, a corporation, and HARTFORD ACCIDENT AND INDEMNITY COMPANY, a corporation, FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation, THE AETNA CASUALTY AND SURETY COMPANY, a corporation, INDEMNITY INSURANCE COMPANY OF NORTH AMERICA, a corporation, AMERICAN SURETY COMPANY OF NEW YORK, a corporation, MARYLAND CASUALTY COMPANY, a corporation, UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation, THE FIDELITY AND CASUALTY COMPANY OF NEW YORK, a corporation, GLENS FALLS INDEMNITY COMPANY, a corporation, STANDARD SURETY AND CASUALTY COMPANY OF NEW YORK, a corporation, STANDARD ACCIDENT INSURANCE COMPANY, a corporation, MASSACHUSETTS BONDING AND INSURANCE COMPANY, a corporation, CONTINENTAL CASUALTY COMPANY, a corporation, and NEW AMSTERDAM CASUALTY COMPANY, a corporation,

Petitioners,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Respondent.

Respondent's Petition for a Rehearing

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Petitioners,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA, a public corporation,

Respondent.

Respondent's Petition for a Rehearing

To the Honorable the Supreme Court of the United States:

Respondent Joint Highway District No. 13 of the State of California respectfully petitions for a rehearing herein.

Respondent also requests that pending action on this petition that this court order that the issuance of the mandate herein be stayed.

GROUNDS FOR REHEARING

We respectfully contend that this court has misconceived the holding of the California court in *Sinnott v. Schumacher*, 45 Cal. App. 46, 187 Pac. 105. What was said therein concerning liquidated damages after abandonment of a contract was not directed to the point that there could be no recovery of liquidated damages for *delay* after abandonment, in a proper case.

The language therein was directed wholly to the argument of the contractor that the contract provision for liquidated damages for delay was the full measure of damage which could be recovered by the owners for all damage occasioned by a breach of the contract.

Damages for delay may be only one of several items of damage resulting from a breach of a construction contract. As in the *Sinnott* case, increased cost of completion may be a more substantial item of damage than damages for delay. Obviously increased cost is not included within a clause providing for damage for *delay only.*

When the California court said that "the right of the defendants to damages as the result of the plaintiff's breach of said contract could not be *affected or limited* by said provision of the contract for a penalty for delay" the court was answering the broad contention of the contractor that no damages other than liquidated damages

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Note: Unless otherwise stated all emphasis appearing herein is supplied.

for delay could be recovered because of the abandonment by him.

The California court did not decide that because of abandonment, that liquidated damages *for delay* could not be recovered for such delay, in addition to other damage caused by the breach, such as increased cost of completion.

Increased cost of completion was not *within the scope* of liquidated damages for delay, and obviously could not be *"affected or limited by said provision"* fixing damages for delay.

We respectfully submit that in the *Sinnott* case the court did not decide that there could be no recovery of liquidated damages for delay after abandonment. The court there decided that a clause providing for liquidated damages *for delay only* did not preclude an award for damages on a breach, for all of the other items of damage including increased cost of completion and the rental value of the building during the period that completion was delayed because of the breach.

The following considerations demonstrate that the construction we have given to the opinion in the *Sinnott* case is proper, and that the propriety of allowing liquidated damages for delay after abandonment was never in issue in that case.

I.

Liquidated damages *for delay* were never pleaded in the *Sinnott* case and were never in issue in that case. There

was no pleading therein setting forth the necessity for the application of the liquidated damage clause and showing facts that it was impracticable or extremely difficult to fix the actual damage, as is required by California law in order to recover liquidated damages.

It is a cardinal rule of California practice that there can be no recovery for liquidated damages without first a *pleading* and also proof of the difficulty and impracticability of fixing actual damage. This is shown by the case of *Long Beach etc. Dist. v. Dodge,* 135 Cal. 401, 404, 67 Pac. 499, wherein the Supreme Court of California said:

> "The principal question presented is one of pleading. The plaintiff assumed, and, I think, correctly, that the damages stipulated in this contract could not be recovered without evidence that it would be impracticable or extremely difficult to fix the actual damage. As an illustration that such evidence is necessary, suppose the high school during this period occupied a leased building equally as well adapted to the purposes of the school as the one contracted to be erected: the damage sustained by the district would obviously be the rent of the building, and in such case stipulated damages could not control. Upon this subject the Civil Code contains the following provisions:—
>
> 'SEC. 1670. Every contract by which the amount of damage to be paid, or other compensation to be made, for a breach of an obligation, is determined in anticipation thereof, is to that extent void, except as expressly provided in the next section.
>
> 'SEC. 1671. The parties to a contract may agree therein upon an amount which shall be presumed

to be the amount of damage sustained by a breach thereof, when, from the nature of the case, it would be impracticable or extremely difficult to fix the actual damage.'

The first of these sections having declared *all* contracts fixing liquidated damages in advance to be void, except as provided in the next section, it is clearly incumbent upon the party seeking to recover upon such agreement to show by averment and proof that his case is within the exception, for without an allegation bringing his case within the exception the complaint in that regard is insufficient, the presumption being in the absence of such allegation that such agreement is void." (Emphasis is the court's.)

See also *Kelly v. McDonald,* 98 Cal. App. 121, 125, 276 Pac. 404, 406; *Mente & Co. v. Fresno C & W Co.,* 113 Cal. App. 325, 331-3, 298 Pac. 126, 128-9. These cases cite numerous authority showing that this is the uniform California rule.

We have set forth in the Brief of Respondent in Opposition to Petition for Writ of Certiorari (Appendix, page 1) the entire pleading in the *Sinnott* case on damages for delay and also the findings of the court on damages for delay. We also left with the court on oral argument a certified copy of the record in the *Sinnott* case. Appellant has not questioned the correctness of the record and the printed excerpts from the *Sinnott* case. These excerpts from the pleadings printed in our Brief and the record show that never in the *Sinnott* case was there any claim for *liquidated* damages for delay. Therefore liquidated damages for delay were never in issue. They were neither *pleaded nor proved* as required by California law.

When the court made the answer that it did to the contractor's contention that the liquidated damage clause for delay covered *all* damage, the court was not ruling that there could be no recovery for liquidated damages *for delay only* in a proper case, but was holding that the liquidated damage clause for delay *only* in that contract, had no application and did not limit the damages recoverable in the event of abandonment which might be greatly in excess of any damage for delay, and which included other items of damage apart from delay.

II.

The excerpt quoted above from the case of *Long Beach etc. Dist. v. Dodge,* quotes verbatim sections 1670 and 1671 of the Civil Code of California. These show that there can be no liquidated damages for delay, or for any cause except in cases of impracticability of fixing actual damage, and never when the actual damages can be ascertained. In the *Sinnott* case the subject of the contract was a building which had a fixed rental value. The liquidated damage clause for delay would be inapplicable to that case because the actual damage could be readily ascertained. In our Brief in Opposition to Petition for Writ of Certiorari (Appendix, page 1) we have copied paragraph VI of the Findings in the *Sinnott* case. Therein the court found that the reasonable market value of the use and rental of the building was the sum of $880.38 a month for a total of three months' delay, or $2641.14. This ability to fix the actual damages for delay was probably

why liquidated damages were not pleaded, and why such were not in issue in the case, and why the court held that the clause which was *for delay only* did not affect the recovery of general damage.

III.

There is a divided line of authority in the United States as to whether or not liquidated damages for delay apply in the event of abandonment. There was this divided line of authority when the *Sinnott* case was decided. For a holding contra to Mr. Williston (*Williston on Contracts, Rev. Ed.*, Vol. 3, sec. 785, p. 2210) see *School District No. 3 etc. v. U. S. Fidelity and Guaranty Co.*, 96 Kan. 499, 152 Pac. 668, 670, a case decided four years prior to the *Sinnott* decision. Therein it was held that liquidated damages did apply in the event of abandonment. Nevertheless, in the *Sinnott* case the court did not recognize this divided line of authority, nor cite any cases either way, or reason the matter in any way. It merely used the language previously quoted that the damages as the result of plaintiff's breach "could not be affected or limited" by the provision for a penalty for the delay, meaning thereby that the penalty for delay could not be a substitute for damage *other than delay* which sprung from the breach of the contract.

It is reasonable to assume that had the court intended to lay down for the first time in California a new rule of law regarding recovery of liquidated damages *for delay after abandonment*, it would have cited available authority

and stated its reasons for its conclusion. The decision is too inconclusive to justify a reversal. It does not even refer to the previous *Bacigalupi* case, next cited, which appellants argue states the same rule of law.

IV.

The California case of *Bacigalupi v. Phoenix Building Co.*, 14 Cal. App. 632, 638, 112 Pac. 892, supports our view. In the *Bacigalupi* case the owner entered into a contract with the defendant contractor to construct a building for $14,000.00. The Surety Company gave a bond for $3500.00 conditioned upon the faithful performance of the contract. The contractor did not complete the building and the owner brought an action against the contractor and his surety and was awarded $3300.00, the reasonable cost of completion over and above the contract price. There was no claim therein *for damages for delay.* The contractor, however, claimed that the provision in the contract for liquidated damages of $5.00 a day for delay, was the full measure of recovery. The court said (14 Cal. App. 638):

> "Manifestly this clause has relation only to damages resulting *from delay only,* and has no bearing upon the measure of damages for an abandonment of the contract and failure to complete the work at all."

In other words, that it was not a substitute for damage other than damage for delay. The only difference between the *Bacigalupi* case and the *Sinnott* case is that in

the *Bacigalupi* case there was no claim for damages for delay, while in the *Sinnott* case there was no claim for *liquidated* damages for delay, but the claim was for actual damage for delay. Actual damages for delay were awarded in the *Sinnott* case and the actual damage was the only damage *for delay* that was in issue in that case.

See *Southern Pacific Co. v. Globe Indemnity Co.*, 21 F. (2d) 288, for an interpretation of the *Bacigalupi* case and also as to that case, the opinion of the Circuit Court herein (R. 2628).

In our opinion the trial court gave the proper construction of both the *Sinnott* and *Bacigalupi* cases when it said regarding these (R. 136):

> "These cases hold that a plaintiff may sue for actual damages when a defendant has breached his contract, notwithstanding a liquidated damage clause in the agreement. *But this is not to say that a plaintiff, or cross-complainant, may not act upon the liquidated damage provision* in a contract when he seeks damages *for delay* caused by an abandonment."

This interpretation of the trial court is in accord with our position herein as to the correct construction of these two cases.

V.

The record in the *Sinnott* case shows that damages were allowed among others for the following items: $8,000.00, increased cost for completing the work; $2,500.00, attorney's fees; $2,641.14, reasonable value of the rental of the building for three months' delay in completion.

Obviously, the contention of the contractor that the liquidated damage clause for delay was a substitute for all this damage was an unsound argument. Manifestly, it is one thing to hold that the *general damage* which the owner suffers because of the contractor's abandonment of the contract is not limited or affected by a provision for stipulated damages *for delay,* and it is another thing to hold that in the event of abandonment the clause providing for stipulated damages for delay is inapplicable *to damage for delay only.* In the *Sinnott* case the court clearly decided the first point above stated, but we respectfully contend it did not decide the latter. We contend therefore that it is not the law of California that when a contractor abandons his contract, that there then can be no recovery of *liquidated damages for delay.*

VI.

There is also this distinction between the *Sinnott* case and the instant case. The *Sinnott* case dealt with a private contract. The contract in question is a public contract. Respondent District is a special and temporary public corporation. This is stated by the court below (R. 2625), and the nature of the District is shown by a case involving it (*Joint Highway District No. 13 v. Hinman,* 220 Cal. 578, 32 Pac. (2d) 144).

That the District in its corporate capacity suffered substantial actual damage from delay, is recognized in the opinion of the court below, wherein the court notes an item of $272.89 a day, the actual per diem cost to the District of operating overhead, during the period of delay

(R. 2625). The District also suffered further damage in its corporate capacity other than this per diem expense (Finding XXXV, R. 203-4).

In addition to the damage for delay sustained by the District in its corporate capacity there was other material damage suffered by the inhabitants of the District because of the necessity to use existing and obsolete routes instead of the new improvement. That this damage is exceedingly great is recognized in the opinion of the Circuit Court (R. 2625), also by the finding of the trial court (R. 202-3).

The authorities regard public corporations as in a peculiar class with respect to damage suffered by delay. In the case of *Parker etc. Co. v. City of Chicago*, 267 Ill. 136, 107 N. E. 872, 1916C Ann. Cas. 337, the court recognizes that in many cases if liquidated damages for delay may not be recovered for a public improvement, the public, though injured, would get no damages at all, saying (Ann. Cas. 1916C 339):

> "The city, in its corporate capacity, would suffer no damages for the failure to complete the work, but the citizens in whose behalf the contract was made would suffer damages which it would be practically impossible to prove."

See, also, a well considered note in Annotated Cases 1912C, page 1028 to the effect that the principle of liquidated damages applies with special force to contracts for public works. See also the opinion and supporting cases in the Circuit Court (R. 2626). Such contracts are in a special class with regard to liquidated damages for delay.

We submit that a real distinction between the *Sinnott* case and the instant case is that the *Sinnott* case dealt

with a private and not a public contract. A private contract usually deals with a structure having a definite rental value and actual damages for delay are readily ascertainable. A public contract usually deals with the converse situation. The *Sinnott* case should be interpreted, if applying at all, as applying to the particular contract involved in that case (a private contract) and not as laying down a rule of law applicable to an entirely different class of contract.

We respectfully request that this petition for a rehearing be granted.

We further respectfully ask that, pending action on this petition, this court order that the issuance of the mandate herein be stayed.

Dated: Oakland, California, December 17, 1940.

Respectfully submitted,

ARCHIBALD B. TINNING,
T. P. WITTSCHEN,
Attorneys for Respondent.

Certificate of Counsel

We certify that the above petition for rehearing is presented in good faith and not for delay.

ARCHIBALD B. TINNING,
T. P. WITTSCHEN,
Attorneys for Respondent.

P 1.

SUPREME COURT OF THE UNITED STATES.

No. 267.—October Term, 1940.

Six Companies of California, Hartford Accident and Indemnity Company, et al., *vs.* Joint Highway District No. 13 of the State of California.	On Writ of Certiorari to the United States Circuit Court of Appeals for the Ninth Circuit.

[December 9, 1940.]

Mr. Chief Justice Hughes delivered the opinion of the Court.

Six Companies of California, a contractor, brought this suit against respondent, Joint Highway District No. 13, to recover the reasonable value of materials and labor furnished under a contract. The contractor had undertaken to rescind for alleged breach by respondent and had stopped work. Respondent answered, alleging wrongful abandonment of the contract and by cross-complaint sought damages against the contractor and its sureties.

There was a clause in the contract for liquidated damages in the amount of $500 a day in case of delay in completion.[1] The District Court found against the contractor and its sureties and on the cross-complaint awarded damages which included $142,000 as liquidated damages for delay. The Circuit Court of Appeals affirmed the judgment. 110 F. (2d) 620.

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[1] That clause provided:

"(d) Damages for Delay.—The Parties hereto expressly stipulate and agree that time is the essence of this contract. In case the work is not completed within the time specified in the contract or within such extensions of the contract time as may be allowed as herein provided, it is distinctly understood and agreed that the contractor shall pay the District as agreed and liquidated damages and not as a penalty five hundred dollars ($500 00) for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work, said sum being specifically agreed upon as a measure of the damage, to the District by reason of delay in the completion of the work; it being expressly stipulated and agreed that it would be impracticable to estimate and ascertain the actual damages sustained by the District under such circumstances, and the Contractor agrees and consents that the amount of such liquidated damages so fixed, shall be deducted and retained by the District from any money then due, or thereafter to become due, the Contractor".

Petitioners contended that under the law of California the clause providing for liquidated damages did not apply to delay which occurred after the abandonment of the work by the contractor. This contention was overruled. The Circuit Court of Appeals expressly recognized that its decision in that respect was contrary to the decision of the District Court of Appeal in California in the case of *Sinnott* v. *Schumacher*, 45 Cal. App. 46. But the Circuit Court of Appeals thought that decision wrong and refused to follow it. We granted certiorari limited to the question whether there was error in that ruling. October 14, 1940.

In *Sinnott* v. *Schumacher, supra*, the suit was brought to recover the value of labor and materials furnished under a building contract. After part performance the contractor gave notice of rescission and abandoned work because of failure to receive the first installment of the agreed payment. Defendants denied that the installment was due and filed a cross-complaint against the contractor and his surety asking damages because of the abandonment of the work. The trial court found against the plaintiff on his complaint and in favor of the defendants on their cross-complaint, and entered judgment for damages. The District Court of Appeal affirmed the judgment. The Supreme Court of the State denied a petition for hearing in that court.

On the appeal to the District Court of Appeal, the plaintiff-appellant contended that the trial court erred as to the amount of the damages awarded, basing his contention upon the clause in the contract which provided for liquidated damages in a stipulated amount per day in case of delay in completion.[2] The District Court of Appeal held that the clause had no application to a case where the

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[2] The clause for liquidated damages in the contract in the Sinnott case was as follows:

"Should the Contractor fail to complete this contract and the work provided for within the time set for completion as aforesaid, due allowance being made for the contingencies provided for herein, he shall then become liable to the Owner for all loss and damages which the Owner may suffer on account thereof, in the sum of Ten Dollars per day, which the Contractor hereby agrees to deduct from his contract price, for each day that the work shall remain unfinished beyond such time for completion, and the Owner agrees to pay to the Contractor a bonus of Ten Dollars ($10) for each day that the work may be completed before the time aforesaid for the completion.

"The agreement in this paragraph made for damages is made as herein set forth for the reason that the actual damage which will be sustained by the Owner

contract had been abandoned without sufficient cause. The court said:

"As to the appellants' contention that the court was in error in its finding and conclusion as to the amount of damages sustained by the defendants and cross-complainants by reason of the plaintiff's unjustified abandonment of work upon said building, and his failure, neglect, and refusal to complete the same, it may be stated that this contention is based upon the clause in the contract which relates to the matter of delay in the time of completion of said building and which purports to fix a penalty of fifty dollars per day for such delay; but this provision of the contract has no application to a condition wherein the contractor is shown to have abandoned his contract without sufficient cause, in which case the right of the defendants to damages as a result of the plaintiff's breach of said contract could not be affected or limited by said provision of the contract for a penalty for delay in the completion of the structure beyond the stipulated time for such completion".[3]

Respondent urges that what was said by the District Court of Appeal in the *Sinnott* case with respect to the liquidated damage clause was a mere dictum. We do not so regard it. This part of the opinion of the court was its answer to the appellants' insistence that the judgment on appeal was erroneous because the liquidated damage clause had been disregarded and damages had been awarded in excess of the amount for which the contract provided. What the court said as to this was a statement of the ground of its decision. It was a statement of the law of California as applied to the facts before the court. It is said that there is a difference between the two cases. That difference appears to be that in the instant case the owner is seeking to apply the liquidated damage clause in order to recover from the contractor, while in the *Sinnott* case the contractor was seeking to limit the damage recover-

by reason of the Contractor's breach of the covenant to complete this contract within the time stated is from the nature of the case impracticable and extremely difficult to fix; and one of the considerations moving the Owner to enter into this contract with the Contractor is the agreement of the Contractor to complete his said contract within the time herein stated and the liquidated damages herein above stated for his failure to do so".

The plaintiff's contention under this clause was that the delay in completion was not more than five days the damage for which under the contract would amount to $50.

[3] Compare Bacigalupi v. Phoenix Building Co., 14 Cal. App. 632, 639. See Williston on Contracts, Rev. Ed., Vol. 3, Sec. 785, pp. 2210, 2211.

able against him to the amount agreed upon. But, so far as the question concerns the applicability of the liquidated damage clause, the difference would not seem to be material, as by the terms of the clause in each case it appears to be intended to bind both parties when applicable. The ruling as to the law of California as applied by the state court was that the stipulation in the contract as to the amount of damages in case of delay in completion was not applicable to delay after the contractor had abandoned the work. As the Circuit Court of Appeals said, that decision "is adverse to ours".

The decision in the *Sinnott* case was made in 1919. We have not been referred to any decision of the Supreme Court of California to the contrary. We thus have an announcement of the state law by an intermediate appellate court in California in a ruling which apparently has not been disapproved, and there is no convincing evidence that the law of the State is otherwise. We have fully discussed the principle involved in the cases of *West* v. *American Telephone and Telegraph Co.*, Nos. 44 and 45, and *Fidelity Union Trust Co.* v. *Field*, No. 32, decided this day, and further amplification is unnecessary. See, also, *Rindge Co.* v. *Los Angeles*, 262 U. S. 700, 708; *Tipton* v. *Atchison, Topeka & Santa Fe Rwy. Co.*, 298 U. S. 141, 151. The Circuit Court of Appeals should have followed the decision of the state court in *Sinnott* v. *Schumacher* with respect to the inapplicability of the liquidated damage clause in the event of the abandonment of work under the contract, and its judgment to the contrary is reversed. The cause is remanded for further proceedings in conformity with this opinion.

It is so ordered.

A true copy.

Test:

Clerk, Supreme Court, U. S.